

NetworkWorld


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December 13, 2004 ■ Volume 21, Number 50

ON THE LEADING EDGE OF RFID

Gillette orders 500 million chips, but moves ahead cautiously as it works out the technology kinks and pieces together a multi-vendor RFID supply chain. **Page 44.**

Alien Technology's high-frequency RFID tag.



Verizon takes next big step toward VoIP

■ BY JIM DUFFY

Best known locally for its spring tulip festival, the small northwest Washington city of Mount Vernon now has a new claim to fame: the first central office in Verizon's network to be converted from old-fashioned circuit switching to cutting-edge packet telephony.

The setup within the Skagit Valley facility doesn't look much different than it did before the conversion, part of a \$1 billion-plus nationwide project that Verizon estimates will take five or six years to complete. The central piece of new equipment, a Nortel softswitch outfitted with add-ons to support legacy TDM intercon-

nections, takes up about as much space as the 7-foot-high, 19-inch-wide Class 5 circuit switch it replaced. The most visible change is that the new gear flashes with green lights, whereas the Class 5 cabinets were "closed up and pretty mundane," says a network operations supervisor at the facility.

But the most significant difference is what you can't see: a platform that promises to generate increased revenue through support of new converged services while slashing capital and operational costs by up to 50%.

Verizon is looking to ditch 2,500 Class 5 switches in about as many local central offices in favor of IP

See Verizon, page 12

Cisco at a crossroads as challenges mount

Revamped routers offer more choices and could thwart competitors.

■ BY JIM DUFFY

SAN JOSE — Cisco is readying enhancements to its edge routers that are designed to help corporate and carrier customers support multiple services, such as Ethernet, frame relay, ATM and broadband aggregation, across a wider variety of platforms.

The company says common software features traversing Cisco's 7200, 7600, 10000 and 12000 lines will let users support services on routers with different configurations and densities instead of having to rely on a specific model for a specific service.

The upgrades, to be rolled out over the next nine months, come at a time when the 20-year-old company faces perhaps the greatest challenge yet to its foundation technology: routing. Cisco lost significant market share in carrier core routing in the third quarter even as it has attempted to navigate a profound product transition to its new top-of-the-line core carrier router, the CRS-1, and its new operating system. Meanwhile, Cisco is fighting off new or reinvigorated competition in the corporate and Asian markets from Juniper and Huawei Technologies.

"While Cisco is in this transition, they remain vulnerable," says

See Router, page 14

Eyes larger data center, IT services roles.

■ BY PHIL HOCHMUTH

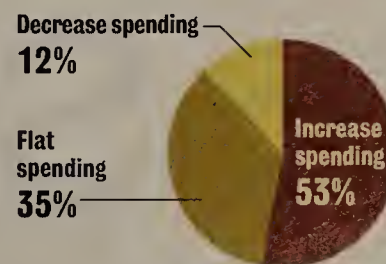
SAN JOSE — Cisco last week insisted, in the face of some skepticism, that its products will be the key ingredient for businesses trying to virtualize IT services such as storage, processing, applications and security.

On the week of the company's 20th anniversary, executives at Cisco's worldwide analyst conference sounded more like the vendor's older siblings in enterprise

See Services, page 16

Positive trend

CIOs plan to increase spending on Cisco gear over the next 12 months, a recent survey shows:



SOURCE: GOLDMAN SACHS SURVEY OF 100 CIOs

A Wider Net

These networks are history

Bringing historic sites into the digital age requires creativity . . . and no drilling allowed.

■ BY PHIL HOCHMUTH

Seventeenth and 18th century architects Sir Christopher Wren and Charles Bulfinch are renowned, respectively, for ornate, domed designs such as St. Paul's Cathedral in

London and the statehouses in Boston and Hartford. But they didn't know jack about wiring a room with Cat5e.

"You never have good space for things like wiring closets or cable conduits in these old buildings," says Rock Regan, CIO for the state of Connecticut. His office is in The Old State House in Hartford, the oldest state capitol building in the U.S., designed by Bulfinch in 1796. "So you find spaces

See History, page 61



Historic sites such as Ford's Theatre (shown here in the 1800s) pose unique network challenges.

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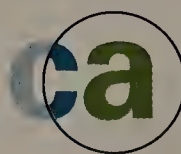
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Features



On the cutting edge of RFID:

Gillette puts in an order for 500 million RFID tags, but thus far has only taken delivery of 20,000. The company is still in the pilot phase, making sure all the wrinkles are ironed out. **Page 44.**

CLEAR CHOICE



TEST

Clear Choice Test

Webroot's Spy Sweeper Enterprise dusts the competition with its excellent performance and useful reports. **Page 47.**

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Breaking News

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Network World Fusion Radio: Getting your rebate money

Rebates can be the bane of one's existence when it comes to buying electronics, especially this time of year as people load up on holiday goodies for friends and family. But as Small-Business Tech columnist James Gaskin explains, getting your rebate is not always easy. **DocFinder: 5046**

Seminars and Events

The 2005 IT Road Map: Future Vision

Are you tasked with managing next-generation security? The new data center? WANs and LANs? Applications management? IP telephony? Wireless? Your new year begins early at this Welcome-to-2005 Tech Tour event. Qualified professionals attend free. **DocFinder: 4646**

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Online help and advice

Wireless Wizards

Setting up two WLANs in the same room
The Wizards help a reader who says: "I want to set up two different wireless networks in the same room. Each one has a different Service Set Identifier . . . but the same Wired Equivalent Privacy key. Is this a workable situation? Is there a better way?" **DocFinder: 5043**

Telework Beat

AT&T study shows spike in global remote work
NetWorker Managing Editor Toni Kistner examines a study that says execs embrace remote work tools, yet cling to old attitudes. **DocFinder: 5044**

Home Base

IT writer shares unique home office tips
Meet new Home Base columnist Sandra Gittlen, who after years in the office launches a home business. Learn her top tips for home business success. **DocFinder: 5045**

News

Bits

Microsoft seeking R2 beta testers

■ Microsoft last week began soliciting for beta testers of a Windows Server version, code-named R2, that it plans to ship next October. The first beta will begin this month with a limited number of testers, the company says. A beta for a broader audience is scheduled to be available in the first half of next year. The R2 Server fills the gap between Windows Server 2003 and Longhorn, due out in 2007, and will be free for customers with Software Assurance maintenance contracts. All others will have to buy a new license to get R2. The operating system will include the next version of Active Directory Application Mode and a new synchronization tool for ADAM. Active Directory Federation Services for identity management, branch-office management features and a host of new administrative tools also are included. Microsoft already has announced that it has pulled its Network Access Protection services, used to control access to a network, from the R2 release.

Treasury banking on AT&T

■ AT&T Government Solutions has inked a multi-year deal with the U.S. Department of the Treasury that could be worth as much as \$1 billion. The contract will span three years with seven one-year renewal options. AT&T and a team of IT vendors, including Accenture, BAE Systems and Lucent are supplying the network components to deliver an IP VPN to 1,000 locations and tens of thousands of Treasury Department employees across the country. AT&T was reluctant to say exactly what type of network services it will first deploy, stating it is working closely with the Treasury Department on a timeline for service delivery. But the service provider did say it expects to support advanced security, VoIP and video services for the department.

Nextel, Sprint reported to be talking

■ Nextel Communications and Sprint are in serious talks about a wireless merger, according to *The Wall Street Journal*. This comes less than two months after Cingular Wireless and AT&T Wireless closed their deal creating the largest wireless service provider in the U.S., with 46 million customers. Nextel and Sprint represent the fifth- and third-largest wireless service providers in the country, with 15.3 million and 23.2

“Outsourcing has indeed reached epic proportions when even game characters like Mario are forced to look for jobs outside the IT industry.”



This week we outsourced the laughs — and the prizes — to Matt Feightner of Westlake, Ohio. Head over to Layer 8 every Monday for the start of a new contest, as well as your daily dose of not-just-networking news. www.nwfusion.com/weblogs/layer8

Layer 8

The Good The Bad The Ugly



Phones in bloom. Researchers say they have developed a cell phone cover made of biodegradable plastic that blooms into a sunflower after it is thrown out and disintegrates, according to Reuters. Motorola, which is working with the scientists, says it is unsure whether it will introduce a product made of the new plastic and that it would take until at least the second quarter of next year if it does roll one out. ➤



From toast to ghost.

The same online casino that recently snagged a grilled cheese sandwich bearing the likeness of the Virgin Mary for \$28,000 on eBay, now has added a ghost to its eBay winnings. The casino, whose name we'll withhold to avoid giving the outfit any more publicity, bid \$65,000 for the ghost, which supposedly was spooking the seller's son. Spurred on by the media frenzy surrounding the ghost auction, a hoard of copycat auctions ensued.



Dell's home cooking. Michael Dell tweaked IBM over its decision to sell off its PC business unit to China's Lenovo: "It's been a long time since our leading competitors actually made a computer. They have outsourced manufacturing computers a long time ago, but Dell continues to invest heavily in the manufacturing and design of computers."

million customers, respectively. Verizon Wireless, the second-largest wireless service provider in the U.S., has 42 million customers. The biggest challenge with these two companies is that Nextel is still running a proprietary network based on Motorola iDEN technology. But the company is expected to announce a network upgrade by early next year that would include standards-based technology, either GSM or Code Division Multiple Access. The latter technology is used by Sprint, which announced a \$3 billion upgrade for its wireless network last week.

Electronic payments now exceed checks

■ The U.S. Federal Reserve, which spent several months studying data provided by 1,500 financial institutions and 68 payment-processing firms, last week said the total number of electronic-payment transactions reached 44.5 billion in 2003, while paper checks accounted for 36.7 billion transactions. That compared with 30.6 electronic payments and 41.9 billion checks used in the year 2000, the last time the Federal Reserve conducted a similar study. With an average annual growth rate of 24%, debit cards were cited as the main driver in pushing electronic payments ahead of checks for the first time for non-cash payments.

Siemens snaps up Chantry Networks

■ Chantry Networks has become the latest wireless LAN start-up to give up trying to go it alone. Just 18 months after launching its Layer 3 WLAN switch, Chantry has agreed to be acquired by Siemens Communications, the \$24 billion network equipment arm of Munich company Siemens AG. The deal is expected to be final early next year. No transaction details were revealed. Barely two months ago, the conglomerate's funding group, Siemens Venture Capital, contributed to a \$17 million Series B funding round for Chantry, and one of its partners took a seat on the start-up's board of directors. Siemens will adopt the Chantry BeaconWorks, a switch with companion thin access points, as the WLAN element of its HiPath product line. HiPath is aimed at enterprise customers, and is heavily oriented toward IP-based telecommunications, cellular and converged voice-data networks.

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The New Data Center

In this, the 10th installment of a six-part series, we discuss how services like the new year-end data center audit, data-center disaster recovery and more, businesses before they pass.

NetworkWorld

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August 15, 2005 • Volume 31, Number 31

State IT execs betting on VoIP

As a different, more efficient way to communicate, VoIP is gaining traction among state IT executives. In a recent survey, 60% of state IT executives said they plan to implement VoIP within the next 12 months. The survey also found that 60% of state IT executives plan to implement VoIP within the next 12 months. The survey also found that 60% of state IT executives plan to implement VoIP within the next 12 months.

Is security ripe for outsourcing?

As the threat of cyberattacks grows, many businesses are looking for ways to outsource their security. In a recent survey, 60% of businesses said they plan to outsource their security within the next 12 months. The survey also found that 60% of businesses plan to outsource their security within the next 12 months.

Colleges cram for test of new security plans

As the threat of cyberattacks grows, many colleges are looking for ways to test their security plans. In a recent survey, 60% of colleges said they plan to test their security plans within the next 12 months. The survey also found that 60% of colleges plan to test their security plans within the next 12 months.

Keeping track of NASCAR

As the threat of cyberattacks grows, many NASCAR fans are looking for ways to keep track of the latest news. In a recent survey, 60% of NASCAR fans said they plan to keep track of the latest news within the next 12 months. The survey also found that 60% of NASCAR fans plan to keep track of the latest news within the next 12 months.

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Federal anti-spam law gets mixed results

A year after CAN-SPAM's passage, unsolicited e-mail has not been reduced.

■ BY CARA GARRETSON

The first federal law targeting spam has done little to unclutter in-boxes, dissuade spammers or make the Internet a safer place; in fact the problem is only getting worse. However, the law has created a framework for prosecuting spammers, as well as produced unexpected benefits for businesses and consumers.

Despite passage of the Controlling the Assault of Non-Solicited Pornography and Marketing (CAN-SPAM) Act, which went into effect Jan. 1, the amount of spam landing in mailboxes continues to rise. As spammers become more sophisticated and team with fraudsters and virus writers,

their messages have evolved from annoying to dangerous. CAN-SPAM embraces the opt-out model, which says organizations can send e-mail to any recipient except for those that expressly ask not to receive such messages. Although this method is less stringent than the opt-in model, which says companies can send e-mail only to recipients who ask for it, hopes were high among proponents that the act would shrink the amount of spam and expose the criminals profiting from it.

The Federal Trade Commission (FTC) has filed five suits under CAN-SPAM, while Massachusetts and Washington each have brought a case under the federal law, and four major ISPs have col-

lectively gone after hundreds of spammers. While these efforts show some headway, the prosecutions pale in comparison to the amount of spam out there, largely because spammers can take advantage of technology to hide their identity, or send their messages from outside the country.

Meanwhile, the volume of spam during the first month the act was in effect actually increased, and has been on a steady climb since. The Radicati Group predicts the number of spam messages sent worldwide will increase to 35 billion in 2004, more than double the 15 billion sent in 2003.

"CAN-SPAM has done nothing, and the spam problem is much worse today than it was a year ago," says Paul Hoffman, director of the Internet Mail Consortium.

The FTC says the goal of the act was never to cut down on spam but to give recipients control via the opt-out component, which the law says every commercial e-mail must contain. "The act is really not drafted in a way to diminish the amount of e-mail that individual consumers receive, but to empower them to limit the flow on a sender-by-sender basis," says Katie Harrington-McBride, a staff attorney with the FTC.

The act has created a unified framework for prosecuting

Spammers canned

In addition to the numerous lawsuits brought under CAN-SPAM by major ISPs this year, federal and state authorities have taken actions. Among the highlights:

- Earlier this month the first conviction under the law was made when a California man was found guilty of hijacking wireless Internet accounts to send adult e-mails. The man faces up to three years in prison.
- In October, a Florida man paid \$25,000 to settle a suit brought by the Massachusetts Attorney General that said he sent thousands of commercial messages from a false e-mail address, touting favorable mortgage rates that did not include an opt-out mechanism and listed a bogus mailing address.
- Also in October, the Washington Attorney General's office sued a pair of California businesses that sent unsolicited commercial messages to state residents with obscured headers and misleading subject lines, and also ignored opt-out requests.
- In April, the Federal Trade Commission brought suit against four Detroit men who used open relays to disguise their e-mail identities and sent spam promoting bogus diet aids.

Microsoft extends NT, Exchange support

■ BY JOHN FONTANA

Corporations that have yet to migrate or finish migrations from Windows NT were thrown a bone last week by Microsoft, which extended fee-based custom support for the expiring NT and Exchange 5.5 platforms.

Microsoft officials say the custom support provides security hotfixes for vulnerabilities deemed "critical" and "important" for NT through 2006 and for Exchange 5.5 through 2007.

Both platforms are facing an end to support, with NT expiring Jan. 1, 2005. Extended support for Exchange 5.5 was slated to end next year. Microsoft won't extend life-cycle support for the two platforms, which includes publicly available support materials.

The custom support will be based on a flat fee that Microsoft would not disclose. The support will cover all NT servers within an organization. Users can pay in three-month cycles to avoid contract lock-in. Previously, the minimum contract was six months.

"The cost of migration can be considerable," says James Kobielus, an independent analyst. "Customers are simply using their increased clout by saying we won't go until we are ready."

Introduced in July 1996, NT still accounts for 2.3 million Windows servers in use today, which represents 17% of the Windows installed base, according to IDC. Those numbers are down from last year when there were 3.8 million NT servers, representing 31% of the Windows install base.

"Supporting these servers isn't something Microsoft wants to do, but they recognize it is something they need to do," says Al Gillen, an analyst with IDC.

Microsoft officials say the program is designed to help customers complete migrations.

"I talked to a lot of customers that are in the process of migration and despite all their efforts to finish in 2005 it was clear they would not," says Peter Houston, senior director of Windows serviceability. "This is to help customers stay secure as they migrate. It is not to extend the life cycle" of NT. ■



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“CAN-SPAM has done nothing, and the spam problem is much worse today than it was a year ago.”

Paul Hoffman

Director, Internet Mail Consortium

spammers (see graphic), as opposed to the patchwork of state laws that existed before. Because the federal law supercedes state laws, states now can focus on devising legislation that builds on top of CAN-SPAM to get tougher on spammers, says Matthew Prince, CEO of Unspam, an anti-spam consulting firm. "CAN-SPAM has forced states to experiment," he says. Eventually these tougher restrictions could find their way into new federal laws.

For example, Michigan and Utah have crafted laws saying e-mailers must ensure a recipi-

ent is not a child before sending adult content — including pornography and ads for alcohol or drugs — by checking the recipients' e-mail addresses and screen names against a state-maintained registry. "This draws a really bright line," Prince says. "If you're General Motors this law won't bother you. But if you're sending out this stuff, you have a slightly higher duty to check the list. With CAN-SPAM, there's still room for state governments to experiment and

says Cathie Meyer, an attorney with law firm Pillsbury Winthrop, who advises corporations on privacy and related matters.

"Most businesses that are legitimately using e-mail to reach out to their customers don't want to continually barrage them with annoying e-mails," Meyer says. "CAN-SPAM has a back-handed benefit, it allows business to more effectively target those who don't opt out, it gives you more effective lists to work with."

To limit the amount of spam received, the FTC would need to devise a "do-not-e-mail" list, much like its successful "do not call" list that keeps marketers from dialing numbers of the list's members, Harrington-McBride says. In June, the agency said it wouldn't create such a list in the absence of the adoption of sender authentication technology, she says.

But even with sender authentication and a do-not-e-mail list in place, as long as spammers can manipulate technology to hide their identity or send spam from outside the U.S., the problem will continue.

"CAN-SPAM has allowed [authorities] to start to prosecute spammers when found, and we're starting to see some state laws on top of the federal one with jail time, but we still have this overarching problem that we can't find these people, so how do we hold them to the law?" says Brian Niles, CEO of TargetX.com, provider of e-mail marketing software and services. ■

Hardware virtualization called boon

■ BY DENI CONNOR AND
JENNIFER MEARS

Intel and Advanced Micro Devices are planning to add virtualization capabilities to their x86 processors during the next few years, a move experts say will lead to more flexible and faster virtual machines on low-cost, standards-based platforms.

But that can lead to performance issues because the software gets bulky. With virtual machine environments being supported directly in hardware, virtualization software such as VMware's ESX Server will no longer have to complete the task of carving out multiple virtual server systems. Vendors then can focus on providing tools necessary to manage virtual environments, analysts say.

It's good news for users who, in growing numbers, are turning to virtualization software vendors to reduce a glut of x86 boxes in their data centers.

News conglomerate Gannett,

A variety of vendors have promised virtualization enhancements.

Vendor/product	Capability	Shipping date
AMD Pacifica	Hardware virtualization	2006
Intel Vanderpool	Hardware virtualization	2005-2006
Microsoft Virtual Server 2005 Enterprise and Standard Edition	32- and four-processor versions	First half of 2005
SWsoft Virtuozzo	Software virtualization of Windows	First half of 2005
VMware Virtual SMP	Four-way virtualization for dual-core and other x86 servers	Deliver by second half of 2005

for example, deployed ESX Server software last year to consolidate dozens of Intel servers that were running at less than 15% utilization onto two, four-way systems running virtual machines.

Adding hardware support to the x86-based virtualization package should result in even more efficiency as far as data center consolidation goes, says Eric Kuzmack, IT architect at the Silver Spring, Md., company.

"Hardware-level virtualization

support will reduce virtualization-layer complexity and improve performance of virtualized applications," Kuzmack says. "Higher performance equals more workloads that can be virtualized."

Hardware that supports virtualization also will reduce the cost of developing virtual drivers, "which reduces our cost for the [VMware] platform," he says.

In the past, the ability to partition servers into multiple, isolated virtual machines was restricted to mainframes and proprietary

RISC-based systems. VMware changed that with its virtual machine software in 1999.

"Today, VMware does [virtualization] with a complicated software system that identifies instructions that have to be handled in a special way to make virtualization work," says Martin Reynolds, a Gartner Fellow. "When Intel and AMD introduce their hardware much of that will go away and the virtualization will become more efficient in terms of space and speed."

Intel and AMD have released few specifics about their technologies — code-named Vanderpool and Pacifica, respectively. Vanderpool is expected to appear in Itanium next year. The features are slated to be added to Pentium and Xeon systems in 2006. Pacifica also is planned to be added to the Opteron platform in the 2006 time frame.

Patrick Bohart, marketing manager at Intel's Vanderpool Technology desktop products group, says Intel's new architecture will let system software, including operating system and applications, run more efficiently.

"In the [Vanderpool] environment, there's a new architecture that eliminates the need for the operating system to run where it's not supposed to run, so the operating system loads where it's supposed to load, the virtual machine monitor loads where it's supposed to load and the whole system gets simplified by an order of magnitude," he says. ■

Correction

■ A graphic on page 32 of the Nov. 29 edition should have identified the company that performed a survey on outsourcing IT functions as Infonet Services.

HP bulks up storage portfolio

Migration software boasts disk-to-disk backup.

■ BY DENI CONNOR

HP last week introduced a mix of hardware and software designed to help customers align the value of their data with the resources used to store it.

The company is playing catch-up in this area of information lifecycle management to supporters of the concept such as EMC, IBM and Veritas Software. HP is fitting together its existing storage and management products, new homegrown products such as those unveiled last week, and technologies from partners.

HP's latest offerings include a new version of its data protection and disaster-recovery software, OpenView Data Protector 5.5. It now includes the ability to back up disk to disk, rather than just disk to tape.

"With storage increasing as it is today, people want a lot of data for analysis, and I have to keep more storage online," says Devin York, director of financial systems for Continental Airlines in Houston. "What Data Protector's disk-to-disk back-up capability allows me to do is abstract my tape library from



HP's StorageWorks Modular Smart Array 1500 cs is a midrange storage controller that can attach to Serial ATA or SCSI drives.

the end users and push my backups directly to disk."

York says acquiring disk is typically very inexpensive when compared with the cost of a new tape library or tape drive. "Disk-to-disk backup is really a pretty simple financial argument to sell to management," he says.

OpenView Data Protector 5.5 lets media be mirrored over unlimited distances. The software is priced starting at \$1,200 for Windows servers and \$5,600 for Unix servers.

On the hardware side, HP aired the StorageWorks Modular Smart Array 1500 cs, a midrange storage system that allows for the concurrent attachment of relatively fast and expensive SCSI, and slower

and less-expensive Serial Advanced Technology Attachment (ATA) drives. The 2G bit/sec Fibre Channel SAN controller, which starts at \$9,000, supports as much as 24T bytes of Serial ATA storage and up to 16T bytes of SCSI disks.

HP also rolled out the StorageWorks Ultrium 960 tape drive, which provides write once, read many times capability for archival purposes. The Linear Tape-Open format drive starts at \$5,540.

Also new is the StorageWorks Optical Jukebox for archival storage of data that needs to be retained to adhere to government regulations. The box, designed for small and midsize businesses, is priced starting at \$8,000. ■

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Verizon

continued from page 1

softswitches, plus line media and trunking gateways. The carrier is deploying Nortel's Communications Server 2000 softswitch, Packet Voice Gateway (PVG) and Media Gateway 9000 products.

Verizon also is investing an unspecified amount in application servers supplied by other vendors and developed internally. It intends to purchase session border controllers and other niche pieces of the softswitch setup from various vendors.

Of all the RBOCs, Verizon appears to be the furthest along in the circuit-to-packet transition. BellSouth is conducting trials of Siemens softswitches in South Carolina and Florida; Qwest has announced intentions to use the Lucent softswitch in its VoIP infrastructure; and SBC is using Siemens' softswitches in its

than substantive," says Thomas Nolle, president of consultancy CIMI. "There's no possible way that voice pricing and market trends could justify a decision to convert a [central office] from circuit to packet. They are posturing for Wall Street, because Verizon has a financial albatross around its neck with these old GTE" central offices.

Verizon maintains that the VoIP project is strategic, and not only in its ability to make and save money. It dovetails with the carrier's Enterprise Advance initiative to garner a greater share of the large corporate telecom services business. Under Enterprise Advance, the carrier has built a national IP backbone that supports multiple access methods — frame relay, ATM, Ethernet or private line.

Enterprise Advance also supports IP VPN services that large businesses eventually can use to carry VoIP traffic.

"Any customer that's buying an IP VPN from us will naturally consider putting voice on that same pipe," says Stuart Elby, Verizon Network Services vice president for Network Architecture. "It's an easy incremental for them to add the voice."

The VoIP buildout also hinges on Verizon's ambitious Fiber-to-the-Premises (FTTP) project, a multibillion-dollar effort to run fiber to businesses and homes. So far, FTTP is being built out in nine states and will let customers access a host of new, high-speed broadband services, such as multimedia VoIP.

FTTP is key to Verizon's capital and operational cost savings with VoIP. If Verizon can bring VoIP customers into the central office directly over fiber, it can avoid the cost of deploying thousands of Nortel media gateways, which enable subscriber copper lines to connect to a packet backbone for delivery of switched and non-switched services.

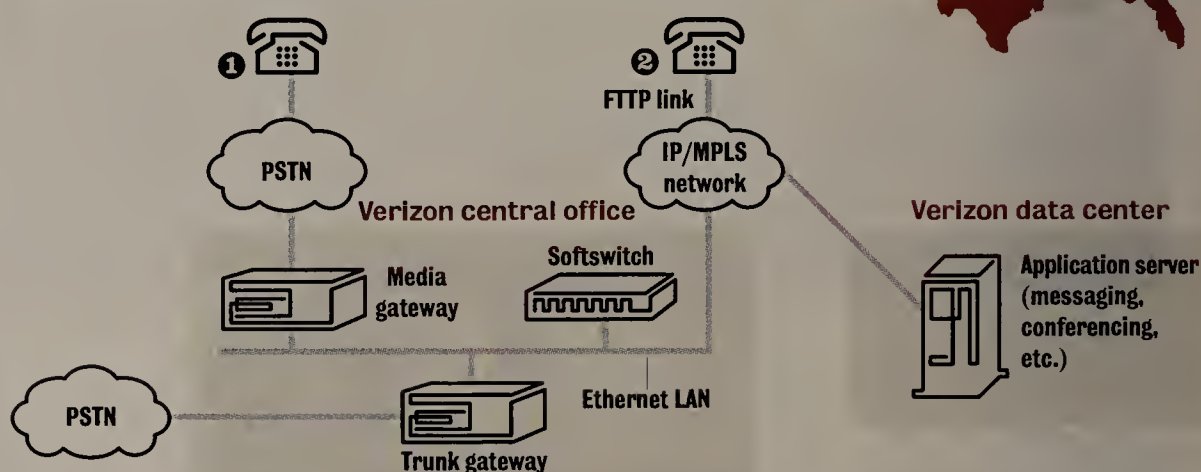
"Our strategy moving forward is that we would really like VoIP to come in over the fiber directly from the customer premises and be able to handle it as IP traffic there on out, and not have to split off traffic to a traditional [public switched telephone network] switch," Elby says.

"If I weren't doing FTTP, I'd be taking out 2,500 Class 5 switches and putting in 2,500 Nortel media gateways," he says.

This is a change from Verizon's initial strategy to embark on the VoIP buildout separately from FTTP, based strictly on the eco-

Switching to packets

Verizon says its rollout of packet telephony across central offices will largely map to its deployment of FTTP, which is initially planned for nine states* (see right). Here's how Verizon handles calls within a central office converted from circuit switching to packet telephony:



1 If a call comes into the central office on copper from the PSTN, it is handled by a media gateway, which preps it for packet switching by a softswitch. The softswitch directs the call, via an IP/MPLS connection, to a Verizon data center housing conferencing or other applications. The softswitch then routes the call to a trunk gateway for delivery back to the PSTN.

2 If a call originates on a fiber-to-the-premises network and enters the central office via Verizon's IP/MPLS network, no gateways are involved in handling the call before it heads back out to the IP/MPLS network.

*Verizon deployed packet telephony in Mount Vernon, Wash., under the carrier's initial strategy to build out VoIP separately from FTTP.

Big savings

Verizon estimates its move to packet telephony will let it halve the

\$4.2 billion

in capital and operational costs currently devoted to sustaining its PSTN facilities.

hosted VoIP service. However, none of these other RBOCs has divulged the status of Class 5 switch replacements or other plans to transition their central offices to packet telephony.

Verizon might be lagging behind AT&T and MCI in moving to a single IP network, analysts note. And Sprint started on its packet transition last year via a \$1 billion deal with Nortel.

Some observers say Verizon's circuit-to-packet transition is more flash than substance. They say Verizon is really just looking to replace older, smaller switches in its GTE footprint — Verizon was formed in 2000 through the merger of GTE and Bell Atlantic — that have depreciated while making it look as if the RBOC is undergoing a comprehensive, bleeding-edge technology overhaul.

"These announcements have tended to be more eye candy

nomics of what was happening with the PSTN switch in central offices.

From Washington to California

Verizon initially is offering, via its Mount Vernon central office, live plain old telephone services — call forwarding, call waiting, voice mail, fax, dial-up Internet access — to businesses and residences in that community. Customers are still on the copper loop there, so media gateways are deployed until fiber is run.

Customers don't see any change in service when their calls come through the softswitch and through the PVG trunking gateway out to the PSTN.

"I haven't noticed anything; it's the same old, same old," says Darrell Brayer, vice president at Cornerstone Financial Services in Mount Vernon. "Just some screwy billing from time to time."

Verizon also has installed many softswitches in five central offices in California, but has not yet turned up service on them because state regulators are challenging an FCC rule that does not require incumbents to unbundle VoIP facilities to provide wholesale access for competitors.

"Unfortunately, we ran into a little bit of a regulatory snafu," Elby says. "It's one of those classic state vs. federal issues."

Elby says the recent FCC ruling that found Vonage's VoIP service to be interstate in nature and thus exempt from state regulation has

no bearing on Verizon's softswitch deployment in California. Wholesale unbundling is a separate issue, and Elby argues that California has erred in its judgment and questions if this error will be fixed.

In other parts of the country, Verizon plans to roll out an IP Centrex service in the second quarter of next year. This will be for small and midsize businesses using a DSL or T-1 access service that is supposed to debut by year-end.

Verizon says it also plans to roll out an IP PBX trunking service for larger businesses in the second quarter of next year that uses the carrier's IP VPN service to tie together IP PBXs on the business premises. This service will feature a central numbering plan managed by Verizon that lets users add a site without manually going into every PBX and changing the numbering plan.

In the third quarter, Verizon says it will add more advanced, large-business multimedia services to its IP Centrex offering, such as some of the lobi services it provides to consumers. lobi is intended to let customers manage phone calls, voice mail, calendars, address books and e-mail using wireline and wireless phones, computers, laptops and PDAs.

For example, what someone sends as a voice message from a landline or cell phone can be received as an e-mail or text message on a PDA or laptop, or redi-

rected to a different phone line. The service can locate customers and customize communications delivery based on preference or time of day, Verizon says.

The market is still immature for these types of services, however, Elby says.

"We're throwing as much out there as we can to see what's going to take," he says.

Early challenges

Some of the challenges that have cropped up during the transition have to do with voice traffic engineering. Carriers such as Verizon that have been around for 100 years learned one particular way to engineer voice traffic using circuit switches with QoS.

IP and packet switching changes all that. Moreover, all the IP experts are from the "old Internet" world, where voice and QoS were not part of the equation, Elby says.

"What we found early on is we were having some problems where things were working fine between calls that were coming from the Midwest into the Northeast," he says. "Then we started getting complaints that echo was turning up. We have echo cancellers, but that would indicate that somehow the delay changed so much in the network that it was outside the bounds of what the echo cancellers could fix."

VoIP calls initially going from

See Verizon, page 16

Department of Interior 'Net battle continues

■ BY JOHN FONTANA

Three years after a judge's ruling in a class-action lawsuit unplugged the Department of Interior and its eight agencies from the Internet for four chaotic months, the department is still fighting to stay online, having averted its third ordered shutdown earlier this month.

Since the chaos of 2001, the Interior Department has invested millions of dollars to improve computer security, a trend, observers say, is cutting across the federal government.

The latest Interior Department Internet blackout was avoided when the U.S. Court of Appeals for the D.C. Circuit ruled on Dec. 3 that U.S. District Judge Royce Lamberth ignored evidence showing the Interior

who went without their existing trust payments as systems were hog-tied. To this day, the BIA remains disconnected from the Internet pending a settlement.

But the Interior Department's seven other agencies are all back up and online, including the Minerals Management Service, Bureau of Land Management, the Fish and Wildlife Service, the Office of Surface Mining and the National Park Service.

And the Interior Department is busy working on its computer security.

Investing in IT

In the past two years, the BIA has allocated more than \$50 million to overhaul its computer systems and network including firewalls and other security software, including a new IT center in suburban

chief knowledge officer for Federal Sources, a research firm focused on public sector IT. "The civil agencies are putting more energy into bolstering infor-

mation security. It is hard to put an exact dollar amount on these things, but they are spending billions of dollars per year on security." ■

“The department has made significant investment in IT security.”

Dan DuBray

Acting press secretary, Department of Interior

Department had addressed his concerns over computer security. Those concerns are part of an 8-year-old class-action lawsuit, Cobell v. Norton, over the mismanagement of American Indian trust funds filed by 300,000 American Indians against the Interior Department, which oversees the Bureau of Indian Affairs (BIA).

Lamberth ordered the shutdown in March 2004, which put the Interior Department offline for several days before a stay was granted. The Dec. 3 ruling overturned Lamberth's order.

The Internet shutdowns started in December 2001, when Lamberth ruled that the government breached its trust obligations resulting in accounting errors for some \$10 billion owed to American Indians and he ordered an overhaul of Interior Department systems.

The BIA systems were so bad that the Interior Department could not determine which systems housed American Indian trust data and Interior Department was ordered to take all eight agencies offline, bringing four months of chaos that showed just how entrenched the Internet had become in the day-to-day life of the government.

Those hurt worst were American Indians,

Washington, D.C., according to the Interior Department.

Dave Anderson, who took over as head of the BIA earlier this year, said during a February tour he conducted for tribal leaders that the facility's network is the "most sophisticated" within the Interior Department.

"The department has made significant investment in IT security," says Dan DuBray, acting press secretary for the department. "Those investments have provided multiple hardening of these systems that house Indian trust data."

DuBray adds the Interior Department says the data in question is now among the most secure in the federal government. He declined to provide details on the security measures deployed.

But experts say the federal government in general is working to harden its computer systems especially in light of the Federal Information Security Management Act, which was enacted in 2002 and ties funding for federal IT projects to security compliance, and the Sept. 11 attacks.

"Those agencies involved in national security have spent billions of dollars with a focus on information security," says Ray Bjorklund, senior vice president and



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Old software drains IT budgets

■ BY ANN BEDNARZ

Obsolete, redundant and unused applications cost companies billions of dollars each year in unnecessary IT spending, new research suggests.

BPM Forum — created to promote business performance management (BPM) techniques and technologies — surveyed 226 IT and business executives and found the majority say they aren't getting the most out of their enterprise software investments.

Companies typically have no way of measuring software ROI, no process for tracking what software is used, and no system for qualifying and certifying existing or new applications, according to the BPM Forum report.

When asked how often they conduct a company-wide software audit to see how many business applications are active on the network, just 25% of respondents said they do so once a year. More than 40% said they do it on an "as-needed basis," while 13.4% never conduct audits.

Processes for getting rid of outmoded software are scarce: 73% of respondents have no systematic process for doing so.

Companies appear more focused on bringing in new software than on tracking the value of applications after deployment, says Donovan Neale-May, executive director of BPM Forum. "I was very surprised at how little attention has been paid to the back-end part of the software life cycle. The software life cycle continues unabated even if it's not producing value. Very few companies seem to audit and assess the usefulness and relevance of applications as they age," he says.

Without proper controls in place, far too much unnecessary software winds up being supported on corporate networks. Among respondents, 70% are convinced they're maintaining redundant, deficient or obsolete applications.

All that effort comes at a high cost: 35% of respondents estimate that unwanted applications consume between 5% and 15% of their IT budgets, and 23% of respondents say the tally is greater than 15% of that budget. ■

Router

continued from page 1

Mark Seery, an analyst at RHK. "There has never been a better time to attack Cisco, especially in the service provider market. However, if Cisco gets through this technology chasm, their position will be extremely strong."

Cisco was stingy on details of the upcoming enhancements, discussed last week during the company's annual analyst conference. But the 7200, which serves as a large branch office or corporate aggregator, will see IPsec VPN and other security extensions in a couple of software releases, says Mike Volpi, senior vice president in Cisco's routing technology group.

The 7600, which is used in enterprise and carrier networks, will inherit the 7200's VPN features and gain a smaller chassis for lower density requirements as well as software upgrades that will improve its high-availability features. Cisco also plans to increase the router's performance and unveil line cards to enhance carrier edge capabilities.

Cisco is prepping a next generation of its 10000 series routers, which are used in carrier networks. Volpi says to expect

enhanced broadband aggregation features and increased capacity. Cisco also will roll out software upgrades to provide a common release cycle to better align the router's leased line and broadband aggregation features.

There had been speculation that Cisco-funded start-up BCN Systems was developing the next generation 7600 and 10000 series routers. All Volpi would say about BCN is that the company, which Cisco just acquired, is developing routing software.

Sources say BCN is developing software for a session controller blade for Cisco routers to link carrier VoIP networks.

The 12000 series, which had been Cisco's highest-end core router until the CRS-1 began shipping in August, will see higher-performance line cards for edge duty. Cisco started positioning the 12000 for the carrier edge two years ago with the introduction of IP Services Engine cards.

Cisco will roll out a series of software releases for the 12000 line for multiservice edge capabilities, such as ATM/frame relay interworking, enhanced Multi-protocol Label Switching (MPLS) edge features and new I/O cards with higher interface density. The 12000 is rumored to



“Clearly, in the core segment, we’ve given up market share — more than we’d like to.”

Mike Volpi

Senior vice president, Cisco routing technology group

be the first non-CRS platform to inherit the IOS-XR operating system, Cisco's new, modular operating system for carrier environments that require a high degree of reliability.

Volpi would not confirm this but did say that XR "favors a distributed system" architecture, like that found in the 12000.

That's not to say that IOS is going away any time soon. Cisco continues to enhance IOS, specifically for the service provider market in the areas of high availability, MPLS edge extensions, in-service software upgrades and virtual private LAN services.

"We're adding a lot of stuff to it because, especially at the edge, it's going to be there for a while," Volpi says.

So will assertions that Cisco is

more vulnerable than ever now as it steers through this router transition. But Volpi sees Cisco's current state as one of strength, not weakness.

"Clearly, in the core segment, we've given up market share — more than we'd like to," he says. "At the same time, we feel like we have the right equipment now to go after and gain some of that share back."

Volpi says Cisco can start winning back share in the second quarter of 2005 — around the same time Cisco's switch fabric for clustering CRS-1 router chassis is set to ship. The fabric is now in trials at Deutsche Telekom.

Cisco says it has at least five CRS-1 customers, with about 14 more trialing the high-end product. ■

IBM tightening data synchronization

■ BY ANN BEDNARZ

IBM this week is expected to announce a software bundle aimed at helping retailers and suppliers streamline the process of exchanging product information.

Global Data Synchronization is built around IBM's WebSphere Product Center software, a retooled version of software gained in Big Blue's February acquisition of product information management specialist Trigo Technologies. WebSphere Product Center lets users maintain a central repository of product information that can be synchronized with internal systems and shared across supply chains.

The Global Data Synchronization bundle, which runs on IBM AIX, Sun Solaris and Linux servers, also includes IBM's WebSphere Application server; its DB2 database; and WebSphere Business Integration Connect, a secure gateway for exchanging information with external sources.

Inaccurate product data shuffled between trading partners can cost companies millions of dollars each year in lost profits, analysts say. A.T. Kearney estimates companies forfeit \$1 million in additional earnings for every \$1 billion in sales if they aren't synchronizing data with their partners.

When retailers, manufacturers and distributors don't have the same product information



on hand, it leads to discrepancies between what a retailer expects to receive and does receive — which leads to invoicing errors and costly trade-settlement maneuvers, says Dan Druker, director of product information management solutions at IBM.

To remedy the problem, the industry has been moving toward adopting standard formats for exchanging business information over the Internet. The Uniform Code Council (UCC) and its European counterpart, EAN International, have identified more than 150 attributes that can be used for item descriptions — from obvious identifiers such as color and size, to more challenging identifiers such as item packaging type and the number of items that form a case and pallet.

The UCC's nonprofit subsidiary UCCnet offers data pool services for validating supplier-provided product information, making sure it complies to EAN-UCC standards and publishing that data to subscribing partners. Transora and WorldWide Retail Exchange offer similar data pool services for retailers and manufacturers.

Staying in sync with such networks is a big part of IBM's Global Data Synchronization product, Druker says. Each data pool provider has a slightly different interpretation of the EAN-UCC standards — one provider might choose to synchronize a different set of EAN-UCC product attributes, depending on the audience it serves, for example.

"While the standards cover how you communicate across a network, they don't completely cover what you send across the network," Druker says. "Customers have found it's incredibly expensive to keep up to speed with changes in the standards and changes in the data pools. In the new product we handle all that for them."

IBM competes in this market against a number of vendors with similar product information management products and services, including Global Exchange Services, Inovis, Sterling Commerce and Velosel.

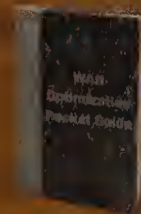
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Services

continued from page 1

IT — namely, HP and IBM. In outlining the company's strategy for corporate data center networks, executives freely tossed about buzzwords such as "virtualization," "on-demand" and "adaptive enterprise" — even giving credit to IBM and HP when doing so.

At issue is the question of where intelligence should reside in a virtualized infrastructure — on computers, or in the network itself, as Cisco believes. Cisco must avoid stepping on the toes of its channel and integration partners — including HP and IBM — as it eyes a bigger piece of the IT and network integration services pie, industry experts say.

Cisco CEO John Chambers said the company is pushing to move more server-based services into networks.

"We're moving from just the transport of voice, video and data [over IP] to a virtualization of services" in data centers, Chambers said. "Ethernet is going to play a huge role in this evolution."

Cisco CTO Charlie Giancarlo and other technologists outlined methods Cisco is exploring to create virtualized services — among them, virtualized security, protocol termination and offload on switches, and Remote Direct Memory Access (RDMA) capabilities on server-to-switch links.

"We have an endless opportunity to migrate features from operating systems and applications into

the network," Giancarlo said. "This is what will allow servers, computers and networks to scale, the ability to offload processors and make them available to perform other work at a higher level . . . [and] create a virtual backplane between networks, storage and pools of processors."

Giancarlo said Cisco gear will be more tied to applications.

"Today we do packet-level routing," Giancarlo said. "Where we really see ourselves going is towards full message based routing things like XML messages or MQ messages."

This could include products that accelerate XML-based traffic, or secure it through filtering and deep-packet inspection. "All this will be fueled by standardizations taking place in the messaging community around XML and other Web services standards. This is much closer than many people believe," he said.

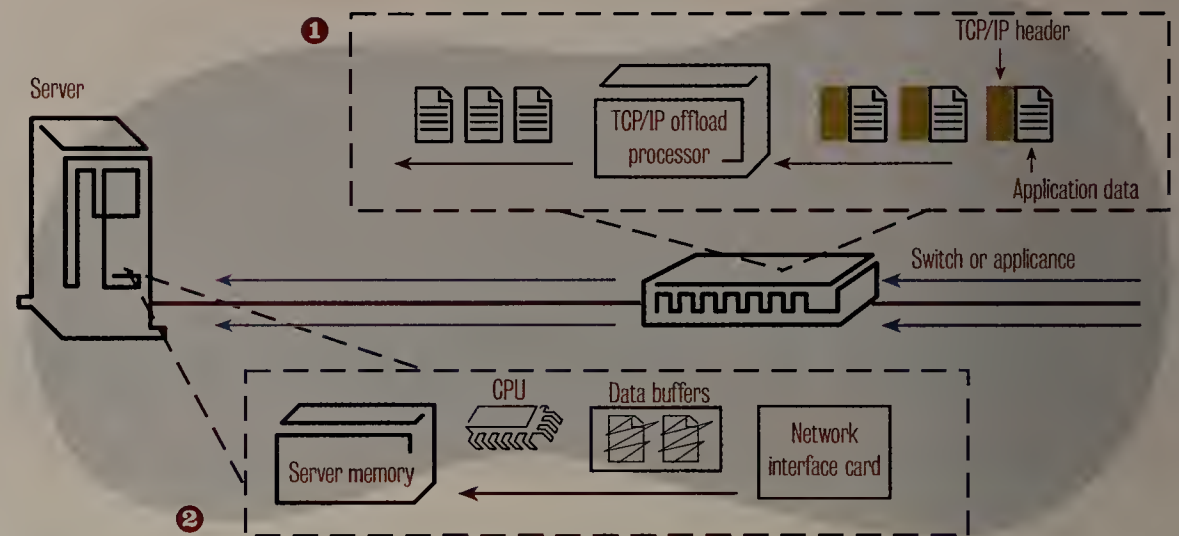
"These concepts are important in building data centers with endpoints that are much more agile," said Mario Mazzola, Cisco's chief development officer. "This is under the vision of an IBM, or HP, in relation to grid computing," which promises to provide computing services as utilities that can be tapped into anywhere and from any device. "This might be, for Cisco, one area of interesting innovation and growth over the next few years," he said.

HP and IBM are the main systems vendors driving utility computing, says Steven Schuchart, a

HOW IT WORKS

Cisco's next big thing?

While several competitors are offering switch-based protocol termination and Remote Direct Memory Access (RDMA), these technologies are being mentioned as future directions for Cisco data center products.



1 Protocol termination would shift the TCP/IP stack from server to switch, letting a Cisco device take on protocol processing, thus freeing the server to digest more data faster and speeding up applications.

2 RDMA in switches and servers would allow a network device to move data from the LAN right into server memory, bypassing latency introduced by CPUs, operating-system-based buffers and software stacks.

senior analyst with Current Analysis. "It makes sense for Cisco to align their strategy with those vendors," he says.

Others say that while Cisco uses language similar to HP's and IBM's, its view of the virtualized IT infrastructure is vastly different.

"Cisco is saying that the network is central with everything," says Frank Dzubeck, president of Communications Network Architects. "But I thought applications and IT were the center of everything."

Dzubeck says Cisco's version of virtual data centers and utility computing would make servers into "dumb" boxes running processes and storing data, while the intelligence of how processors, storage and other services are utilized, managed and made available would reside in switches and routers.

"IBM doesn't believe that and neither does HP," Dzubeck says. "Their mentality is that it all plays together — storage, the network and computing."

Other observers say the technology approaches that Cisco is proposing are not so new. Upstart vendors such as Redline Networks, Netscaler and Crescendo Networks — makers of so-called application front-end devices — have had switches and appliances on the market for more than a year that streamline data center networks with protocol-termination RDMA technology.

Other such start-ups as Sarvega and DataPower are also ahead of

Cisco with routers and appliances that speed up and secure XML-based traffic.

"A lot of the niche [vendors] are ahead of the traditional networking companies" in the areas of performance for data center networking gear, says Mike Smith, CTO of Forbes.com. To support its huge traffic volumes, the Web site uses boxes from Crescendo, which provide switching, load balancing and RDMA capabilities for speeding up server performance.

Selling this concept to businesses such as annuities giant ING Group will be Cisco's challenge.

"Cisco is going to have to convince not just a networking team, but a server team and a storage team that they can do this for them," says Kelly Lursen, a network manager at ING Group. "It reminds me of mainframes. When we needed an extra cycle out of the mainframe, we'd put in a [front-end processor] to offload the work from the mainframe."

Besides pushing these on-demand themes, another way Cisco plans to emulate its enterprise IT counterparts is by ramping up its services offerings.

"If we had to do the late 1990s all over again, we would have focused more not on how to get customers to consume IT products, but how to help customers change business processes," Chambers said. "There is a strong opportunity for Cisco not just to be a strategic vendor, but a trusted

business adviser as well."

Many of Cisco's largest customers are asking for the vendor to become more involved in the planning and integration of Cisco products, either alongside or instead of channel partners, network integrators and service providers, Chambers said.

Cisco this week will announce that HP is joining the Cisco Global Services Alliance program. The alliance will give customers a combined installation and support service when installing HP computing products and Cisco network gear, the vendor says. HP is the first large IT provider to join Cisco's program, which was announced in June.

"With Cisco's view of being a trusted adviser and putting together all the architecture, it sounds like they should be in the services business, but they're not," says Jon Oltsik, a senior analyst with Enterprise Strategies Group.

Dzubeck of Communications Network Architects says the plan to skim the top services accounts could rub partners the wrong way.

"The issue is when they step over bounds," Dzubeck says. "IBM has 30,000 people who do [services] for a living. You'll see problems arise when Cisco's ideas of business transformation get in the way of IBM's." ■

Verizon

continued from page 12

Chicago to New York were routed down to the Southern states if there was a failure in an optical ring connecting the Chicago and New York routers, Elby says. The routers were reconnected in 50 millisecond and resumed normal operation, but the outage created a huge gap in VoIP latency — beyond what the echo cancellers could handle, he says.

"We found that we really had to go and rethink the way we do IP engineering and get it out of the early days of the Internet," Elby says. He says they had to "start thinking about the classes of service and putting bounds on latency, and making sure your engineering tools and the IP domain and the transport domain could take into account the fact that you have real-time services running over them."

The entire project also is getting Verizon to move away from the cost structures tied to legacy voice services. Once an entire Local Access and Transport Area (LATA), or telecom service region, is changed out, that LATA achieves a return on the VoIP investment within several months, Elby claims.

There are also two big buckets of operational cost savings in store for Verizon. One is eliminating the need to write checks to Lucent and Nortel to maintain the old Class 5 switches.

The other big bucket is in the cost of maintenance, repair and rehab of the copper plant, a situation that the FTTP build-out is designed to fix. The cost of maintaining a fiber plant is negligible compared with that of maintaining a copper plant to get to the customer, Elby says. ■



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"Sid, I think our security has been compromised, what do you think?... Sid?"

NETWORK SECURITY

FACT: 77% OF COMPANIES CITED EMPLOYEES AS A LIKELY SOURCE OF HACKING ATTACKS.

FACT: 93% OF COMPANIES WHO LOSE DATA CENTER ACCESS FOR 10 DAYS OR MORE FILE BANKRUPTCY WITHIN A YEAR. *HALF FILE IMMEDIATELY.*

FACT: ATTACKS ON COMPANY NETWORKS ARE NEARLY DOUBLING EACH YEAR. THE NUMBER OF MALICIOUS CODE ATTACKS USING BACKDOORS TO STEAL CONFIDENTIAL INFORMATION HAS RISEN NEARLY 50%.

FACT: A NETWORK SECURITY BREACH COMPROMISING CORPORATE DATA COSTS ON AVERAGE \$475,000 IN LOSSES AND RECOVERY.

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Short Takes

■ **Nortel** and **Symantec** are joining forces to beef up network security by using Symantec threat discovery technology in combination with Nortel network hardware to block attacks. The alliance will bear fruit next year in the form of software upgrades for Nortel gear and services from Symantec, according to the companies. The two companies say they have a successful prototype that employs threat information gleaned from millions of customer endpoints and 20,000 sensors in the Internet. This information is pulled down by Nortel Alteon Application Switches, which inspect traffic going through them for signatures of attacks Symantec has identified. When they discover malicious traffic, the switches can turn off sessions or flows that contain the threat. Nortel and Symantec say they have been collaborating on this security project for more than a year.

The companies have worked together before to let Nortel's Tunnel Guard software determine whether PCs trying to connect to VPNs have the correct version of Symantec anti-virus software.

■ **Sprint PCS** is looking to unify 40 contact centers in seven countries on one platform that can handle up to 250 calls per second. It hired **IBM Global Services**, which chose technology from **EADS'** commercial telecom division for the massive consolidation project. The new Sprint PCS system will be based on EADS' Centergy application suite, which is designed to let multiple contact centers operate as one. With it the wireless provider's 20,000 agents can be located anywhere with a telephone and Internet connection — in a large call center or a small remote office, for example — and still be part of the same centrally managed contact center system.

When the Sprint PCS rollout is complete, EADS says it will be the largest known single-system contact center in the world.

Healthcare looks to biometrics

Hospitals using fingerprint scanners to reduce insurance-card fraud.

■ BY ELLEN MESSMER

Healthcare organizations are turning to a high-tech means to combat fraud: fingerprint biometrics that capture the patient's fingerprint to prove identity.

Catholic Health Systems in Buffalo, N.Y., and the Advanced Ambulatory Surgical Center in Chicago have patients place a finger on a biometrics scanner during the front-desk registration process. The fingerprint image is captured electronically and made part of the patient's permanent record in a database that is accessible over an internal LAN. If another individual at a different time attempts to use the same health-insurance card, the transaction is stopped.

While statistics about the extent of this crime are hard to come by, FBI supervisory special agent Joe Parris says the FBI is

“**[Fingerprint scanning] is the wave of the future in healthcare.**”

Dr. Severko Hrywnak

CEO, Advanced Ambulatory Surgical Center

aware of the problem, although the crime is usually prosecuted at the local law-enforcement level. Sharing a health-insurance card is “identity theft with permission,” Parris says.

At Catholic Health Systems, the main impetus to electronically fingerprint patients was to eliminate the insurance-card fraud.

“There’s no picture on an insurance card, and sometimes it can get passed around,” says Jeffrey Baughan, vice president of IT at the healthcare provider, which operates

four regional hospitals. About six months ago, the healthcare organization's Sisters of Charity hospital began using the Ultra-Scan fingerprint scanner in the admissions process to establish the patient's identity. The electronic fingerprint image, which is stored in a Siemens health-information management system used at

Sisters of Charity, has been effective in combatting insurance fraud. Baughan says he'd like to expand use of it to have nurses and other staff submit to a fingerprint scan before accessing a narcotics cabinet, for example.

The Ultra-Scan fingerprint scanner — which works differently than optical fingerprint readers because it uses an ultrasound process to capture a fingerprint image — has worked so well that Catholic Health

See Healthcare, page 20

Threat center aims to thwart viruses

■ BY JOHN FONTANA

Hoping to help users take a proactive stance in hardening instant-messaging and peer-to-peer communications networks against viruses and worms, IMlogic last week opened a dedicated threat center to supply detection, analysis and thwarting of the work of hackers.

The IMlogic Threat Center was developed in conjunction with the major IM networks, including AOL, MSN, Yahoo and Jabber, and will share data with similar centers run by Sybari and McAfee.

The threat center could help corporate IM users jump on viruses or worms that use either communication medium or a blend of e-mail, IM and peer-to-peer to attack computers.

Last month, IMlogic rival FaceTime Communications unveiled a similar program called the FaceTime Instant Response Security Team, which will make its analysis of malicious IM and peer-to-peer traffic available to the public. Earlier this year, Akonix Systems introduced dynamically updated IM threat protection for L7 Enterprise gateway users.

Both IM and peer-to-peer file-sharing programs made the SANS Institute's list of Top

Not-so-lovely spam

7%
of instant-messaging
traffic is now spam,
according to IMlogic,
and there are more
than
300
known IM and peer-to-
peer viruses.

bilities should be taken very seriously.

IMlogic and the IM networks have developed a global “honeypot” infrastructure to trap suspect IM and peer-to-peer messages, including those with links to hacker Web sites or that carry malicious attachments.

The site will provide description of the attack, risk assessment and how to protect against the attack. The Threat Center will be publicly available and will supply users with notifications over e-mail or IM.

“We have learned from e-mail,” says Francis deSouza, CEO of IMlogic. “The spam traffic has exploded, and they are playing catch-up to the problem. [IM] looks a lot like e-mail four years ago, and we know the trajectory of those four years.”

“This is a very good way to give individuals an idea of what is out there,” says Genelle Hung, an analyst with Radicati Group. “There is no hard data for users to look at and evaluate these viruses.” Hung says IMlogic's partnership with the major IM network providers means that those providers can filter for viruses on their networks and block malicious content.

IMlogic will incorporate the IM and peer-to-peer virus signatures into its IMManager product, which provides control and corporate IM usage tracking. ■

20 vulnerabilities this year. The report said IM vulnerabilities come in the form of remotely executed buffer overflows such as the recent exploit using JPEG files, URI/malicious link-based attacks, file-transferring vulnerabilities and Active X exploits.

Peer-to-peer vulnerabilities include denial-of-service attacks and arbitrary file access. Peer-to-peer also can raise legal issues about distribution of copyrighted material. SANS advised that these vulnera-

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	Content Management Server
	Host Integration Server
Information Work Infrastructure	Exchange Server
	Office SharePoint™ Portal Server
	Office Live Communications Server

Nortel system stops network threats

■ BY TIM GREENE

Nortel now can protect businesses from never-before-seen threats using new intrusion-detection and -prevention technology that monitors network traffic and blocks the traffic that seems malicious.

Called Threat Protection System, the defense gear consists of hardware probes that gather data about traffic and an appliance called Defense Center that tells the sensors what to look for and analyzes the data they collect. If Defense Center identifies anything suspicious, it automatically can trigger a new filter in a Nortel switch/firewall to block it.

The system has been used for four months at Coppin State University in Baltimore, where it has caught and isolated viruses that slipped by the school's anti-virus protection, says Ahmed El-Haggan, Coppin's CIO and vice

president of IT. The school is beta-testing Threat Protection System.

The school installs McAfee anti-virus software on all its machines, but students and faculty can connect to the network with laptops they own, El-Haggan says. These might not have anti-virus software and thus might be infected. Based on the amount of traffic a virus generated in one instance, Threat Protection System tracked down the dorm room where the guilty machine was located. The system sent an alarm and administrators shut down the infected machine's access port. "It stopped the propagation," El-Haggan says.

Threat Protection also can be configured to signal a Nortel switch/firewall to shut down the traffic. Nortel says it plans to enable Threat Detection to make Nortel load balancing Applications Switches and LAN switches block traffic, too.

Protection system sensors

come in two models: the 2050 with throughput of 100M bit/sec, available Dec. 27; and the 2070 with throughput of 750M bit/sec, available Jan. 1. Threat Detection System ranges from \$15,000 to \$30,000.

Separately, Nortel is introducing a new VPN gateway that handles SSL and IPSec sessions at high enough capacity for large corporations and even service providers.

Called VPN Gateway 3070, the new device can handle a blend of 4,000 SSL and IPSec remote-access users at a time, and encrypts using Triple-DES at up to 600M bit/sec. This is up from 2,000 users and 300M bit/sec for its previous VPN platform, VPN Gateway 3050.

A new software release for the VPN platforms enables setting up multiple security domains on each gateway, so, for instance, a service provider could use one box to support multiple custom-

ers, each with its own set of policies. The VPN Gateway Version 5.0 also enables clustering multiple devices and is available in mid-December.

Earlier versions of the software supported only IPSec or only SSL on a single device, but 5.0 supports both. The software also makes it possible to check remote machines trying to connect to the VPN to determine if their configuration meets security policies so they can be allowed to connect.

Remote users can make network-layer connections to SSL VPNs because of a new feature that supports downloading an Active X agent to the remote machine that intercepts traffic at the network layer. This makes it appear as if remote sessions are taking place on the LAN rather than using a Web interface that looks and functions differently than the LAN version.

For customers that already have

a corporate portal for remote-access users, the software supports offloading SSL session processing from Web servers to the VPN Gateway hardware. This lifts a processing burden from Web servers.

Nortel also has beefed up its support for Extensible Authentication Protocol (EAP) that makes it possible to use switch ports to authenticate multiple users. The support comes in the form of software for its 8300 Routing Switch that makes it possible for one switch port to handle both EAP and non-EAP traffic.

Another new option for the same switch is a hardware blade that powers a firewall to make it possible to protect LAN segments without having to install a separate firewall appliance in tandem with a switch. The LAN Service Delivery Module will support other security applications later, the company says. It costs \$19,000 to \$40,000. ■

Healthcare

continued from page 17

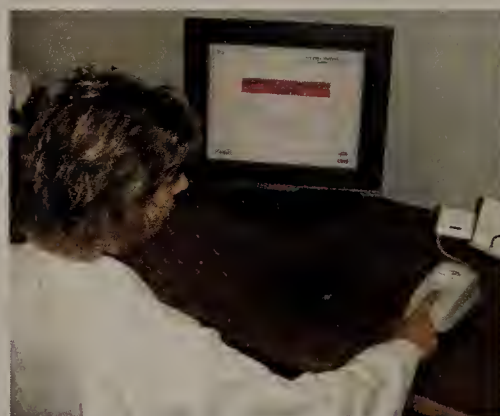
Systems plans to roll it out to its other area hospitals in the next few months. The Ultra-Scan scanner can accurately read fingerprints smudged by dirt, grease or newsprint. It can capture the prints of people whose prints are hard to capture — young children, the elderly and some ethnic groups such as Asian women.

Ultra-Scan founder Dr. John Schneider, who invented the ultrasonic fingerprint-imaging process, says Asian females tend to have very fine ridges on their fingers. This can be a problem for optical scanners. However, Ultra-Scan equipment, which uses sound rather than light, is more sensitive. "It works no matter what the contamination on the finger is," he says.

One optical fingerprint scanner maker, AuthenTec, acknowledges that the delicacy of Asian women's fingerprints can be hard to reliably capture but the company says it has overcome the problems and its technology is used in cell phones in the Asian market, although not in hospitals for patient identification. However, St. Vincent Hospital in Indianapolis does use AuthenTec fingerprint scanners for a single sign-on mechanism developed by Computer Associates so that hospital employees can access the hospital's internal network.

The Advanced Ambulatory Surgical Center, staffed with about 100 doctors, also says its primary motivation for using Ultra-Scan biometrics was preventing fraudulent use of health-insurance cards.

"The patients come in to register for surgery, and we fingerprint them," says Dr.



The Ultra-Scan fingerprint scanner was put in hospitals to prevent patients from passing health-insurance cards to each other.

Severko Hrywnak, owner and CEO of the surgical center, which began using Ultra-Scan fingerprint readers last spring. Hrywnak says, for example, the center has discovered patients switching insurance cards with others. Most commonly, it's a matter of insurance cards getting passed around among family members.

Fingerprint biometrics comes in handy before the hospitalized patient undergoes treatment. A quick check of the patient's fingerprint via biometrics scan clearly identifies to nurses and doctors the patient before surgery.

The surgical center also uses the fingerprint scanner for this purpose. "It's the wave of the future in healthcare," Hrywnak says. Healthcare organizations using the biometrics say patients typically don't balk at the process of putting a finger into the scanner.

Fingerprint scanners can cost between \$200 to \$1,500 per identification node (sign-on station). ■

Trend Micro gives away mobile anti-virus software

■ BY PAUL ROBERTS

Trend Micro last week became the latest major anti-virus software company to provide protection against mobile phone viruses, with new anti-virus and anti-spam software for phones running the Windows Mobile and Symbian's operating systems.

The company introduced Trend Micro Mobile Security Version 1.0 and will let so-called "smart phone" users download and use the software for free until June. The product contains protections against mobile threats like the recent Skulls Trojan and Cabir worm, and filtering for Short Message Service (SMS) spam, according to a statement.

Trend Micro hopes to attract new customers by letting them install the new Mobile Security product and receive anti-virus updates at no cost until June 30, says Todd Thiemann, director of device security marketing at Trend Micro.

The product works like other anti-virus software, spotting mobile threats using signatures Trend Micro developed. The software will protect mobile devices from new threats in "real time," as malicious code attempts to install on mobile devices. Users also can scan storage devices inserted into supported phones or manually initiate scans of the mobile device.

New anti-virus and anti-spam signatures can be uploaded to the mobile device

using General Packet Radio Service (GPRS), a wireless communication service for connecting mobile phones to the Internet that is common in 3G devices. Alternatively, updates can be transferred using Microsoft's Activesync, Thiemann says.

Trend Micro's Mobile Security software will support a range of devices that run the Windows Mobile 2003 or Symbian OS Version 7.0 operating systems. A version of the product for phones running Windows Mobile, including the Motorola MPx200, O2 XPhone and Orange SA SPV C500, is available. Trend Micro plans to have a version for phones that use the Symbian operating system by January, including support for the Sony Ericsson Mobile Communications AB P800, P900 and P910, and Motorola A920, A925 and A1000, Trend Micro says.

Trend Micro is just the latest anti-virus company to offer anti-virus software for mobile devices. Symantec announced Symantec Client Security software for the Nokia 9500 Communicator and the 9300 smart phone model, which use the Symbian operating system, in November.

Roberts is a correspondent with the IDG News Service.



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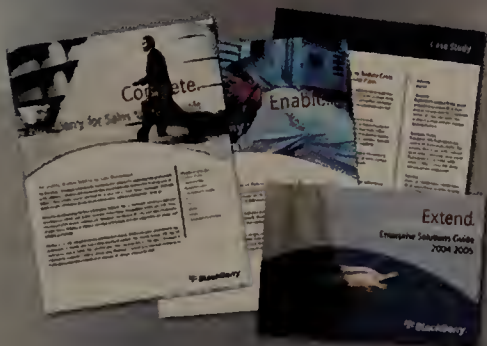


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Special Focus

THE WIRELESS INFRASTRUCTURE: Developing components.

The WLAN standards alphabet keeps growing

■ BY JOHN COX

The bad news is the alphabet of IEEE standards for wireless LANs keeps expanding. The good news is you can ignore a lot of it, at least until the new technology starts showing up in actual WLAN products.

Some projects in the 802.11 Working Group, which oversees WLAN standards, are nearing completion. Other groups, such as those working on mesh networks and for fast roaming, are just starting up.

Most network executives will never have to worry about the fine print in these technical standards, which cover things such as modulation schemes, access protocols and authentication, or whether to transmit power in the Layer 1, or physical layer.

Most of the worrying is done by wireless chip makers, WLAN product manufacturers and software engineers.

Of course the standards are only one part of the decision making involved in deploying an enterprise WLAN. Corporate suppliers might swear they support 802.11i, the recently completed standard that fixes many weak points in WLAN security.

"But that's almost a meaningless statement," says Sheung Li, product line manager and 802.11 liaison for wireless chip maker Atheros Communications. "The question is, what is the vendor actually offering in terms of capabilities and tools for a full security implementation?"

After all, standards rarely introduce a new technology. Instead, they create common ways for a WLAN to be created, monitored and managed. Vendors use the standards as a foundation and add unique or at least distinguishing features and functions atop the standard. In many cases, vendors will have their own code to do a given WLAN function and then replace it when an 802.11 standard is ratified. For example, Airespace has written its own code for radio resource measurement and management in its WLAN switch product line; when the 802.11k standard is ratified, the vendor will upgrade its products with code based on that.

Most vendors have at least one person who tracks or participates in these IEEE groups. They should be able to give customers a road map of their implementation plans.

The Wi-Fi Alliance, an industry trade group promoting 802.11 WLANs, is taking on an expanding role in creating certification tests for WLAN products as new IEEE standards are ratified. The alliance is finalizing test programs for the 802.11d and h standards (see graphic) and has plans to introduce others next year.

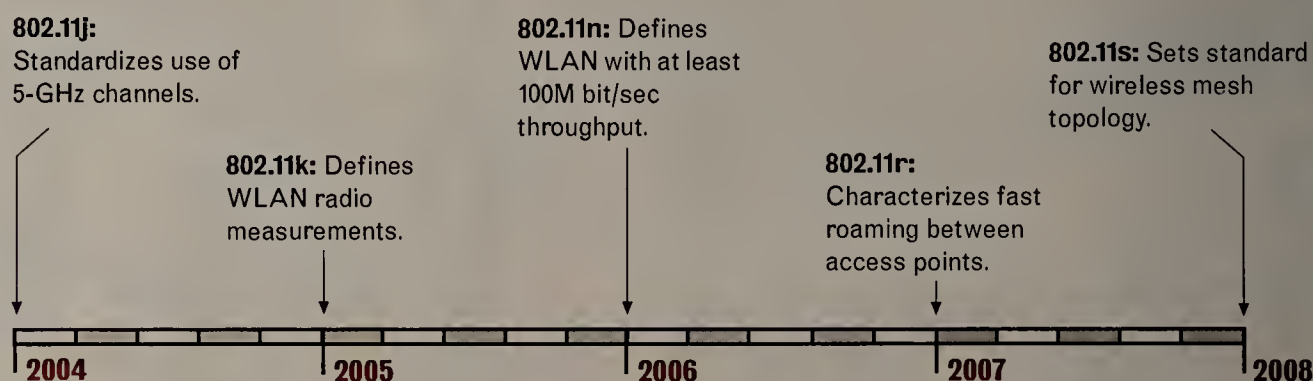
The alliance also has a role in refusing to sanction new WLAN features that vendors introduce ahead of final IEEE ratification. A few vendors, mainly in the consumer sector, have just started introducing WLAN access points that use multiple antennas and special algorithms to boost throughput. This technology, called multiple input multiple output, is a likely candidate for the 802.11n standard. But that work has only just begun.

"We want to discourage any use of terms suggesting that [802.11n] is real and that products can be 'compliant'" at this stage, says Frank Hanzlik, the alliance's managing director.

Meanwhile, the starring role in 802.11 standards surely goes to the recently formed 802.11n Task Group, which is

Wireless timetable

A myriad of wireless standards will be set in the coming years. Here's a look at what's on tap from the IEEE.



charged with creating a standard for WLANs with at least 100M bit/sec throughput, compared with 20M to 25M bit/sec today. The group is sifting through scores of technical proposals. Don't expect a final standard until sometime in 2007.

But there are plenty of other WLAN advances completed or in the works. Some of the lesser-known or more recent standards work on 802.11 are:

- 802.11d, multi-country roaming: Old by WLAN standards, the working group finalized 802.11d in 2001. It's a way for WLAN access points to broadcast what country they're in and what country-specific rules client network interface cards have to follow. You can fly from New York to Rome, walk into your office or hotel, fire up your wireless laptop and expect to connect with whatever WLAN is open.

- 802.11F, inter-access point protocol: The capital "F" designates a "recommended practice" not a formal standard in IEEE parlance. The basic idea was to create a way for access points to talk among themselves and to transfer data associated with a connection quickly from one access point to another. But WLAN vendors already have figured out how to do this on their own for their own access points. The document was published in mid-2003, but so far is not being embraced. "There are a set of technical issues that make this [hand-off] difficult," says Andrew Myles, manager of wireless standards for Cisco's Wireless Networking Business Unit. "As far as I know at this point, no one is planning to support it."

- 802.11h, dynamic frequency selection, and transmission power control: the original idea for 802.11h was to create a set of management messages for access points and clients in the European 5-GHz band to coordinate efforts to avoid interfering with radar and satellite communications in the same band, Atheros' Li says. The WLAN devices select another channel and adjust power output if needed. But these same actions can be used to improve WLAN efficiency, quite apart from any specific regulatory rules, according to Li, as more countries open more 5-GHz bandwidth for use by 802.11a WLANs. The standard was final in September 2003. Products with some of these features might start appearing soon. Some elements of this work are being carried into another standard, 802.11k.

- 802.11j, use of the 4.9- to 5-GHz spectrum in Japan: Originally, this group's work was focused on making changes to the 802.11 media access control and 802.11a PHY layers to gain Japanese regulatory approval in this band. But Li points out that the FCC recently allocated this same band for licensed spectrum set aside solely for public safety and homeland security. The 802.11j work on how to use this spectrum could prove useful in the U.S. as vendors introduce products for public safety networks in this band.

- 802.11k, radio resource management: Launched in late 2002, this project will standardize an array of radio measurements, dealing with roaming requests, an array of data about the radio channel and data about the client devices. In addition, this data can be made available to higher-level WLAN management applications, where the information can be used in tasks such as optimizing performance and balancing traffic loads. Task Group K is sifting through some 1,000 comments that members submitted on the proposed standard during a recent ballot, says Clint Chaplin, wireless standards lead at Symbol Technologies. Completion is likely in mid-2005. According to Cisco's Myles, the Wi-Fi Alliance will launch a testing and certification program for 802.11d and k next year.

- 802.11r, fast roaming: Handing off clients quickly from one access point to another with their authentication and security policies intact becomes critical when clients are moving, such as VoIP calls made with handheld WLAN phones, Chaplin says. This group, launched in 2004, is creating a standard way to make roaming fast, so that users don't have to re-authenticate at each new access point or have their calls disrupted, he says.

- 802.11s, wireless mesh for access points: Formed in early 2004, this group is creating a standard that will let access points act as routers for wireless data, forwarding traffic to neighboring access points as Internet nodes do today with a series of multi-hop transmissions. Such mesh networks are inherently more reliable because they can route around failed nodes, and can adjust to balance traffic loads and optimize performance. The members still are sorting out their approach and schedule. Symbol's Chaplin says the first call for proposals likely will be next month. ■

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EMC NS Network Attached Storage Solutions

Easy to Use, Scalable, and Extensive NAS Product Family

EMC is one of the leading storage companies in the world with a wide range of systems and software along with a world-class services organization. EMC has a comprehensive and extensive set of products and solutions that offers customers a one stop shopping experience. EMC is also the leader in SAN-based storage systems with its CLARiiON® and Symmetrix® product families, and has led the way with its Centera™ product for content addressable storage (CAS). That said, historically EMC has not been as dominant a player in the broad network attached storage (NAS) market where there are only a few major competitors. This is despite having for many years led in the high-end of this market. ESG attributes this partially to an historical lack of NAS product options, with solutions only at the high-end, and a perception of being expensive and complicated.

In the last several years, EMC has expanded its product line to deliver a full range of NAS products that spans the low-end, mid-range and high-end environments. Although the perception of EMC NAS being expensive and complicated has lingered, ESG Lab found that the current reality is quite different.

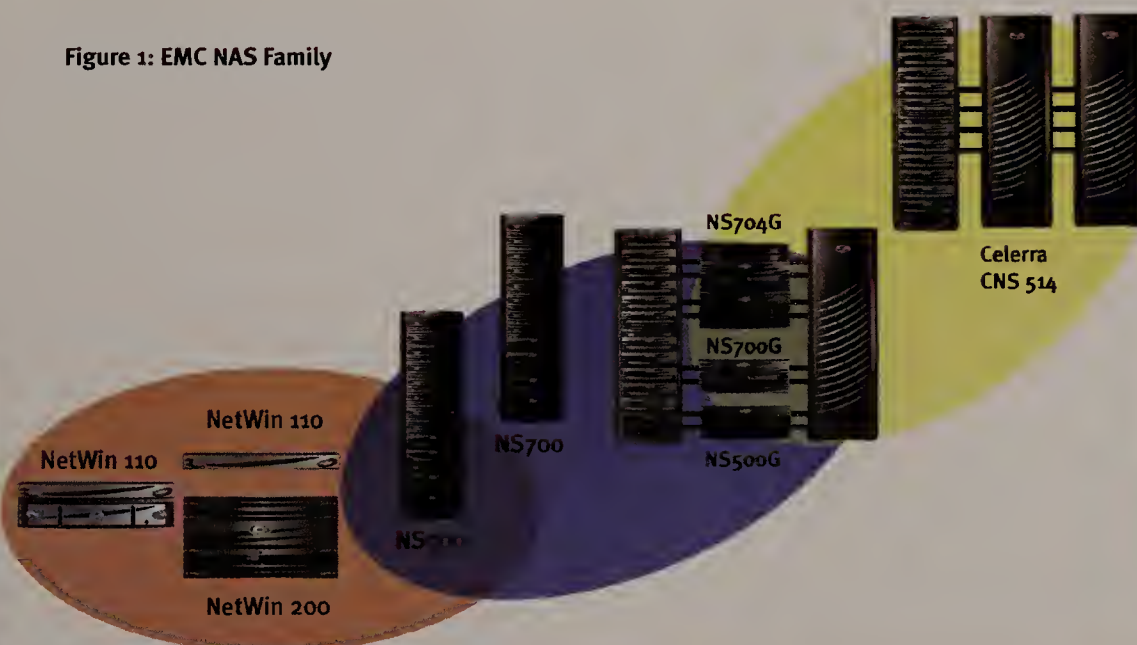
Today EMC has one of the most extensive suites of NAS products that addresses a broad range of price, performance, availability and capacity requirements. ESG lab evaluated EMC NS and found it is easy to manage and scalable, and offers a rich set of software features.

Surprisingly, there are very few major storage vendors that have a wide range of NAS products. NAS offers easy to use storage for files of all types and in some cases for transactional data. A recent ESG research study found that approximately 73% of

over 130 small to medium-sized companies had installed NAS solutions compared to 59% with installed FC SANs. Large organizations typically have a mix of SAN and NAS using the latter for file storage, reference data and content archives.

NAS is widely used and yet only a handful of storage vendors develop their own solutions with a small number of products for customers to choose from. EMC has one of the most comprehensive sets of offerings, scaling up and down the price, performance, high availability line.

Figure 1: EMC NAS Family



Read the Full Report at
www.EMC.com/ESG

Product Overview

The EMC NAS family is composed of three product lines:

Entry level NetWin™ line—based on the Microsoft Windows Storage Server 2003 OS

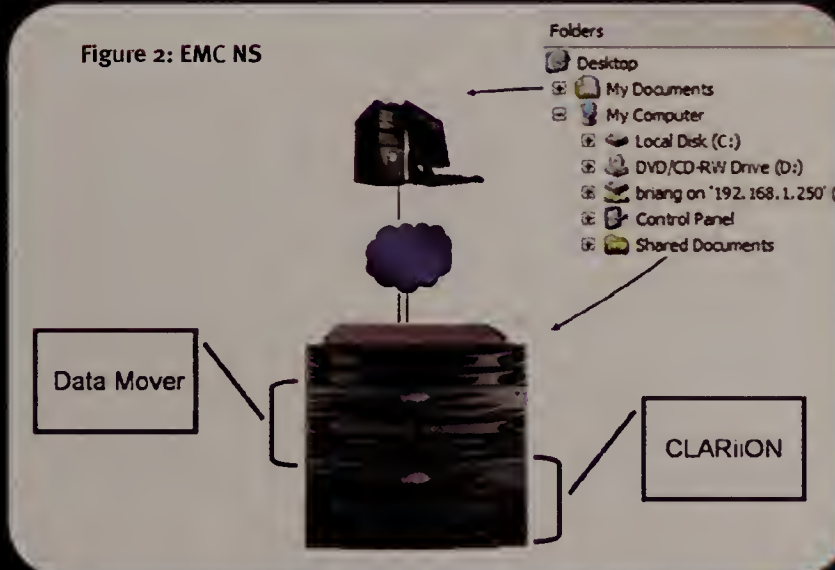
Mid-tier NS line —available in both integrated and gateway models offering a choice of 1, 2 or 4 Data Movers that attach to CLARiiON, or in the case of a gateway, to CLARiiON or Symmetrix storage subsystems

The high-end CNS with a high-performance fault-tolerant cluster of Data Movers attached to enterprise-class Symmetrix storage subsystems and/or modular CLARiiON subsystems

The EMC integrated NS products consist of Data Movers, intelligent controllers that manage data I/O and CLARiiON storage where the data resides.

The NS and CNS have distributed clustered architectures that give these products an extremely competitive level of scalability. The NS family supports one to four Data Movers in a single system, and the CNS can scale up to 14 Data Movers in a single system. This scalability allows customers to grow their EMC NS and CNS environments by adding Data Movers aggregating bandwidth, processing power and cache memory.

Figure 2: EMC NS



Summary of Results

ESG Lab performed hands-on testing of the EMC NS product at their facilities in Southboro, MA. The following is a summary of the results:

- A product overview and a lab tour were used to gain insight to the wide range of the EMC NAS product lineup. ESG Lab observed the entry-level NetWin configuration (server and storage is approximately 4U) to a high-end CNS configuration (consumes one entire floor tile) in front of four fully populated and active enterprise-class DMX arrays.
- ESG Lab performed an end-to-end out-of-the-box configuration of an NS701 in approximately 30 minutes. ESG Lab completed a second end-to-end configuration in only 20 minutes.
- A single NS701 was upgraded by adding ATA storage and a second Data Mover. The upgrades were completed in just under an hour. Active/standby configuration testing included a "fail over, fail back" exercise while a video playing from a file system was served up by the now highly available NS702.
- An NS700G gateway was configured to consolidate the storage needs of applications well suited for block-based storage (e.g., Microsoft SQL) and network attached file sharing (e.g., shared home directories) on the same storage array.
- Gateway configuration testing ended with a Windows 2003 server playing videos from a network attached shared drive, over Fibre Channel, and over iSCSI. A snapshot of the iSCSI drive was mounted as another drive letter as well. Drives within a single CLARiiON were simultaneously accessed through each of these protocols using both network file system and block based protocols.

- As videos played, errors were injected including pulling out a hard drive, failing a storage controller, shutting down a redundant Data Mover and pulling a failsafe protected Ethernet cable.

- Celerra Manager Advanced Edition was used to manage multiple NS series systems.

- Testing of recently announced iSCSI support across EMC's entire NAS product lineup included validation of point-in-time snapshot imaging support for an NS700 iSCSI device using an EMC server-based utility integrated with Microsoft VSS.

ESG Lab's View¹

EMC has done a great job expanding its NAS product line supporting small, medium and large environments with various products to choose from based on the needs of the customer. There are too few vendors that can offer an entire product line of NAS solutions that meet the needs of the general market. EMC has the market reach but in the past has lacked a competitive portfolio of products across various market segments to meet those needs. Today, EMC offers a product family of NAS solutions that can address the requirements of a wide range of different customers, applications and environments.

- EMC has made the NS family easy to manage even for non-technical users. ESG Lab's view is that the EMC NAS wizard-driven management software is as good as or better than any of the other solutions we have tested.
- ESG Lab believes that it is extremely important that EMC is supporting iSCSI within the NS family. Customers can use NAS for file storage/sharing and iSCSI for Exchange and database storage using the same network infrastructure. The combination of NAS and iSCSI drives down storage total cost of ownership through simplified management and the reduction in SAN infrastructure.

- ESG Lab has spoken to various customers and a large number of them see real value in using NAS gateways and believe it is a cost-effective way to consolidate their SAN and NAS storage.

- Another compelling aspect of EMC NAS is that it supports a clustered storage architecture offering scalability for up to 4-nodes (Data Movers) with the NS products and up to 14-nodes (Data Movers) with the CNS. Additionally, the EMC NS and CNS products have field upgrade options. ESG Lab found the upgrade process easy taking less than an hour to complete. The NS and CNS scalability and field upgrade options allow customers to grow as needed.

- Customers can use FC or ATA drives within the EMC NS systems for tiered storage. ESG Lab has found that tiered storage within a storage system is a major advantage enabling customers to store data for longer periods of time, make more copies for more granular file recovery, and implement backup-to-disk or near-line storage to high-density lower cost ATA drives.

The EMC NAS product line is extremely competitive and customers should consider the wide range of options available to them as well as the service and support that EMC can deliver. The biggest challenge EMC has to overcome is market perception as the "complex and high cost solution." EMC has done an excellent job addressing the market requirements but now needs to get the word out loud and clear. ESG Lab believes that customers should put EMC on the short list of NAS vendors to evaluate, leveraging their extensive product line, support capability, and focus on being dominant in this market.

¹ ESG Lab Disclaimer: It should be noted that ESG Lab did not use and is not using EMC products in a production environment day-in and day-out. ESG Lab reports are not designed as a substitute for formal engineering testing by potential customers. Each customer should do his or her own evaluations. However, ESG Lab believes its tests provide a solid basis for the opinions expressed in this report.

Read the Full Report at www.EMC.com/ESG

Roadmap Recommendations

ESG Lab made the following recommendations to EMC for their product roadmap:

In the near term EMC NAS has made great strides through technology, like file system linking to enable a virtual file system size to reach 32TB. That said we believe EMC should increase their maximum support file system size greater than 1.9 TB which will result in both a larger virtual file system size and continue to further simplify management.

In the long term ESG Lab recommends that EMC consider supporting a single file system image with a single level of management built over a scalable and upgradeable cluster of Data Movers. The goal of this approach is to simplify management and increase performance and scalability. At this time only the extreme needs of the high performance computing and digital media applications are driving these requirements, but the extreme storage needs of today will be the mainstream in the next 3 to 5 years.

In addition ESG Lab believes that support for NFS Version 4 will become more important over time for multiple reasons including security, session recoverability, improved file locking and enhanced wide area networking features.

Enterprise Computing

■ WINDOWS ■ LINUX ■ SERVERS
■ STORAGE ■ GRID/UTILITY ■ MOBILE COMPUTING

Start-up tackles file proliferation

■ BY DENI CONNOR

NeoPath Networks' founders came up with the idea for their initial product while trying to manage the accumulation of files across computers on their home networks.

It struck them that the same problem must exist in businesses.

"The user problem is that unstructured, file-based data is growing like mad," says Bob Nusbaum, senior product manager at the company. "The first [network-attached storage] system is a blessing, the fifth is a headache. . . . You end up with data scattered all over the place, which you have trouble finding."

The company, which was founded in April 2002 as Meta Data Systems and has raised \$18 million, is introducing a hardware/software appliance this week called File Director. The product consolidates direct-attached storage, NAS, and Windows

and Linux file servers into a common pool for easier management and faster access.

File Director attaches to a network via Gigabit Ethernet, and gathers attributes and creates a metadata reference for each file stored so users can find them faster.

Carl Kesselman, director of the Center for Grid Technologies at the University of Southern California in Marina del Rey, has beta-tested File Director.

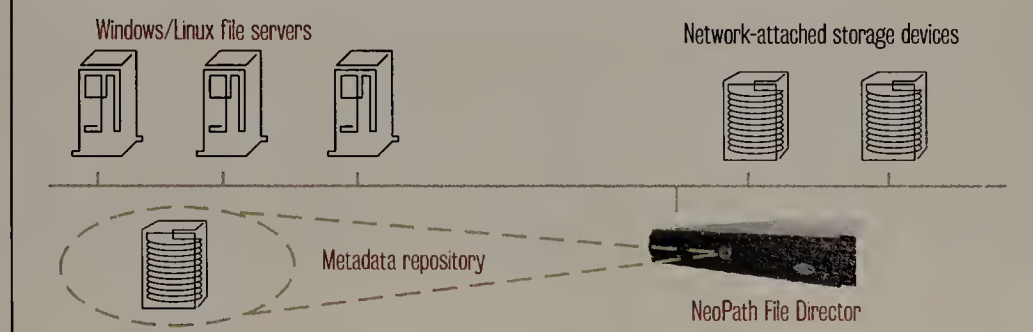
"We deal with large amounts of data on a variety of NAS devices spread across our lab," Kesselman says. "The idea of consolidating the devices so they are easier to administer appealed to us."

File Director also can host applications that govern the movement or migration of data for information life-cycle management. A policy engine is included that automatically can migrate files based on rules IT managers set.

File Director collects only unstructured data or files, which Enterprise Strategy Group says are 80% of the data on the network. The product does not look at data

Virtual filing cabinet

NeoPath's File Director appliances, which can be clustered for failover purposes, discover files on servers and network-attached storage devices. They also create a metadata repository to make it easier for end users to access the files regardless of where the data sits.



stored on storage-area networks unless it has a file presentation enabled through a NAS gateway.

File Director works with any storage device that stores data in Unix/Linux Network File System or Microsoft Common Internet File System formats.

Others offering products include Acopia, NuView, Rainfinity and Z-Force. NuView has a software-based approach to Windows file system virtualization, while the others have hardware implementations.

A single File Director costs \$30,000; a clustered version is priced at \$50,000. ■

Takes

■ **Onset Computer** has announced a temperature and humidity monitoring system for server rooms and data centers. The **HOB0 LCD Temp/RH Logger** is a low-cost system that records and displays temperature and humidity and can activate an auto-dialer that alerts IT staff to problems. The wall-mounted, battery-powered system costs \$189; the auto-dialer costs an extra \$169.

■ **UltraBac Software** this week plans to introduce back-up and disaster-recovery software that supports differential image backups, bar codes, and 64-bit Intel and Advanced Micro Devices processors. Systems administrators with tape autoloaders or tape libraries will use bar codes to identify tapes to a media pool. **UltraBac 8** is designed to coordinate the tapes with the back-up schedule and index them for quick access and recovery. Differential image backup allows only modified sectors of a disk to be copied, saving space and time. The Windows server-based offering starts at \$495 per server.

The truth about the NetWare client for Linux

**WIRED
WINDOWS**
Dave Kearns



For the past couple of weeks in the "NetWare Tips" newsletter (see www.nwfusion.com, DocFinder: 5032, for a summary), I've been talking about the soon-to-be-available (or maybe not) NetWare client for Linux. This is something that fans of NetWare and Linux have been kvetching about for at least the past half-dozen years.

There have been ways to mount NetWare volumes on Linux (and vice versa). An eDirectory for Linux has been available. There have been redirectors for the NetWare Core Protocol (NCP), which provide "translation" services from Linux calls to NetWare equivalents (some of them at least) similar to what was available for early (such as Windows 95) Windows operating systems. But there hasn't been a full-blown Linux client in the same way

that there's a Windows client — and used to be DOS, OS/2 and Macintosh clients.

I finally was able to track down the guys at Novell who are responsible for providing a Linux client and spoke to them last week. Hugo Parra, Novell's Open Enterprise Server (OES) product manager, and Charlie Ungashick, director of product marketing for server operating systems, spent some time on the phone with me to try to sort out the facts from the FUD.

The bottom line is that there will be a true NetWare client for Linux (but it will be called the "Novell" client for Linux) early next year. This will be the functional equivalent of the standard "Client32" implementation for Windows desktops. This will include (among other stuff): background authentication, logon script support, an iPrint client, an iFolder client, Linux printer drivers and full NCP support.

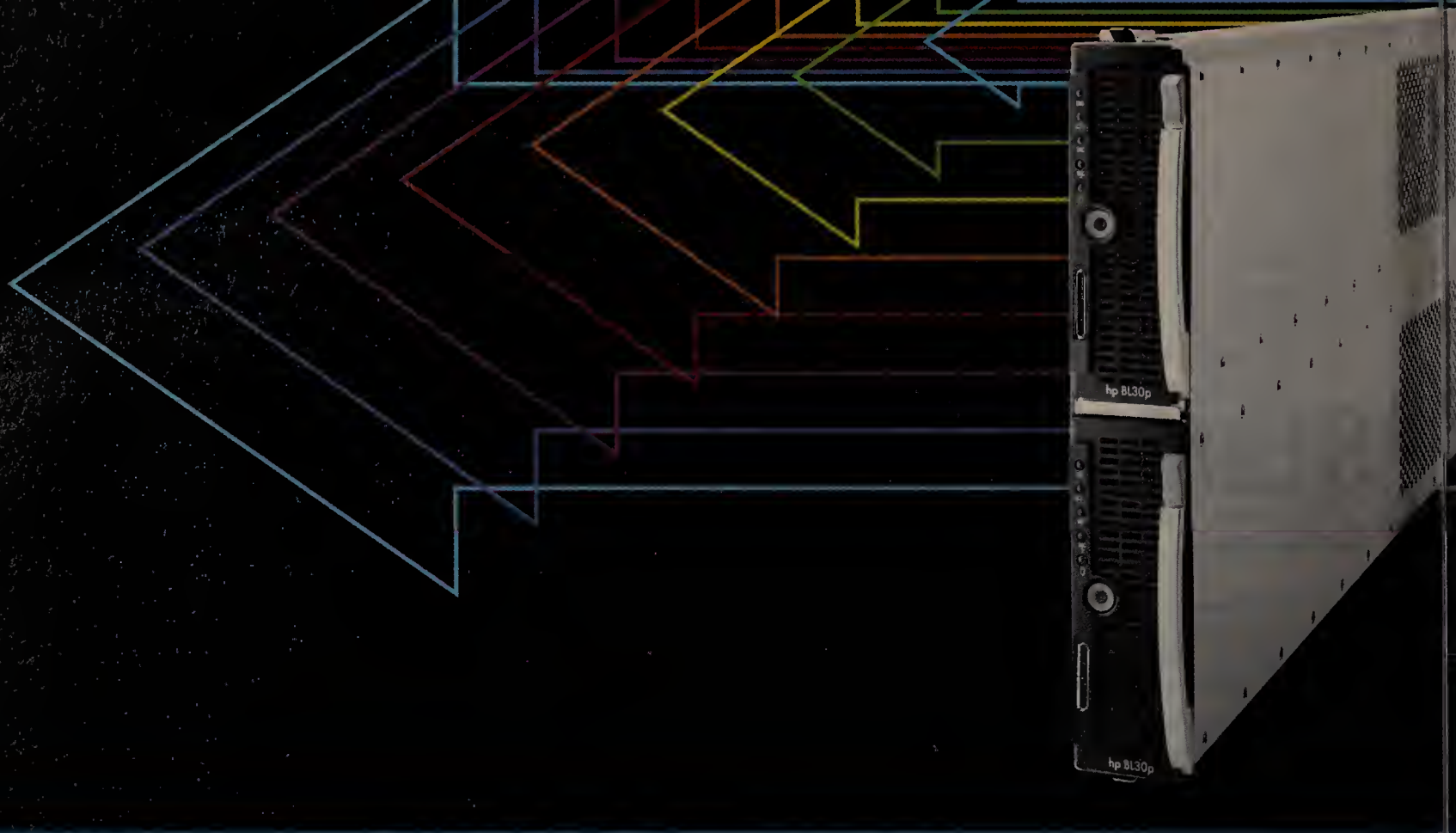
I might not have made this clear before, but there also will be full support for the Windows clients when using the Linux host version of the upcoming OES. So whether or not your users are operating Windows or Linux desktops and whether or not they're connecting to NetWare- or Linux-based OES servers, they'll have similar, equivalent experiences.

Novell is trying really hard to make this as smooth a transition as possible. The only drawback is that the Linux client won't ship with OES in February, but will be available within 90 days of that first shipment. I'd rather they got it right than got it early.

Kearns, a former network administrator, is a freelance writer and consultant in Silicon Valley. He can be reached at wired@vquill.com.

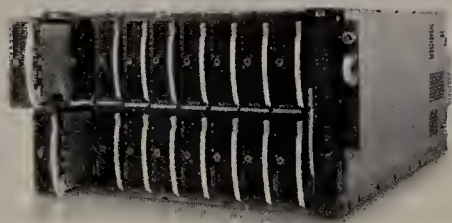
Tip of the Week

Wired Windows will be back after the holidays with a look into networking's crystal ball as well as the eighth annual **Networking MVP Award**. 2005 promises to be another exciting year for those who keep the servers and clients humming, so celebrate (responsibly) and then come back ready to learn. See you next year!



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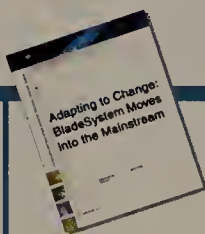
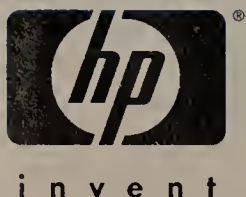
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Avaki bolsters data integration wares

■ BY ANN BEDNARZ

Avaki last week released a new version of its flagship data integration software, which lets users run scheduled and ad hoc queries against distributed data sources.

Companies in the past have deployed tools that handle a single distributed query project, but they don't scale to support multiple integration projects and the work can't be reused, says Craig Muzilla, vice president of strategy and marketing at Avaki.

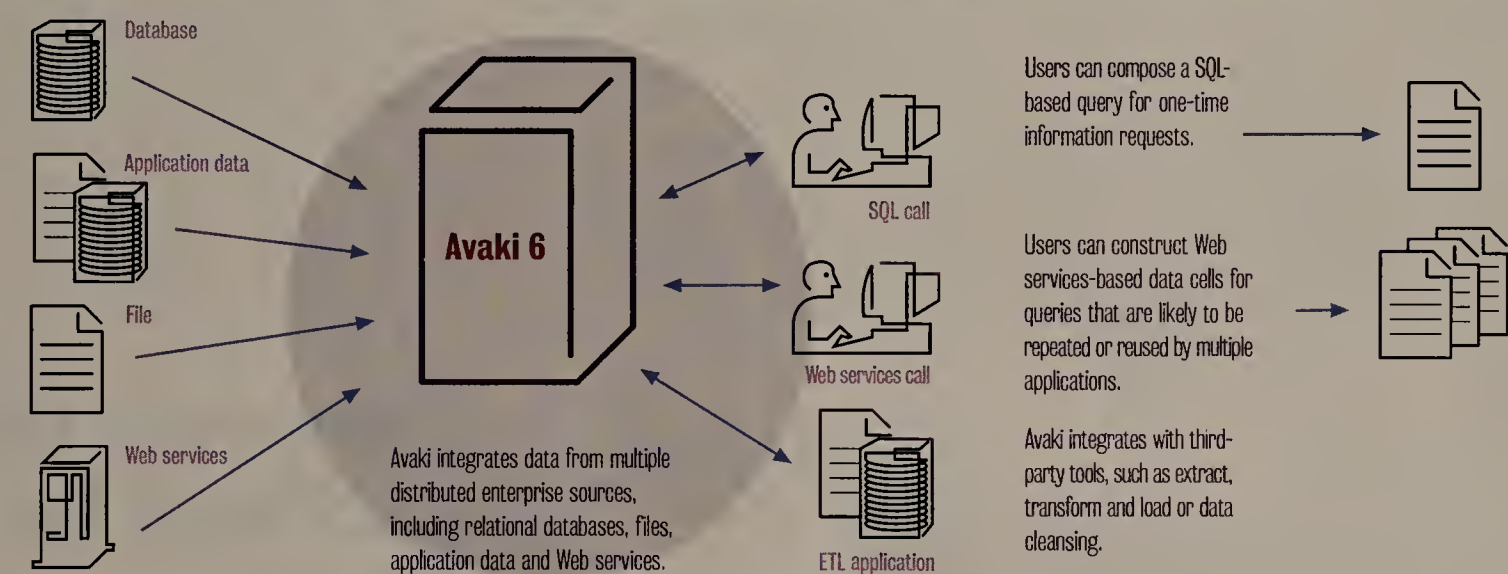
Avaki is designed for greater scalability, he says. It's built around a data services layer that acts as a single, virtual data source. It doesn't replicate data, but it handles the extraction, transformation and aggregation of data stored in internal and external repositories. Multiple applications can draw data from the services layer, which hides the complexity of linking to disparate relational databases, files, application data and Web services.

To simplify access, Avaki provides multiple ways for users to get the data to the applications that need it — using SQL, Web Services and procedure calls, for example. SQL-based queries are best suited for one-time information requests, while Web services-based data calls are best suited for queries that are likely to be repeated or reused by multiple applications, Muzilla says.

Web services interfaces free the calling

Enterprise data link

Avaki gives users the tools to control multiple data integration projects under a single umbrella.



tool or application from having to know some of the gory details of the source data, says Ted Friedman, a principal analyst at Gartner. "With SQL, you need to know specifics such as column names, etc. to get the job done. So with Web services, you can more loosely couple applications and data. Avaki provides a choice, which is nice," he says.

For the new release, Avaki focused on improving performance. It built more

detailed management tools into Version 6.0, including the ability to see how different queries are performing and stop a run in progress, for example.

The new version includes more scheduling options so users can plan when queries are executed and results are cached. Avaki

can cache data throughout a network of Avaki servers and balance integration execution loads across multiple servers. New monitoring features are aimed at making it easier for users to keep tabs on Avaki servers at run-time and adjust capacity.

See Avaki, page 28

Takes

■ **Quest Software** recently announced software that lets IT managers consolidate users' Microsoft Exchange personal folder files and messaging data into a centralized archive for improved security. **Quest Archive Manager for Exchange 1.0** makes archiving transparent to users and provides a centralized platform for management. It lets IT managers control access to data for regulatory and audit purposes. Archive Manager for Exchange starts at \$15 per mailbox.

■ **Micromuse** last week announced the latest revision of its flagship network monitoring software, **Netcool/**

Omnibus Version 7. The release, which includes server and distributed agent software, now can reduce the number of irrelevant events IT managers must pore through to determine the source of network performance problems, the company says. The distributed agents filter events based on severity and lessen the load on the core Netcool/Omnibus system. Also in this release, Micromuse enabled a feature that lets customers configure the system while it continues to monitor managed devices, helping IT managers reduce scheduled downtime. Micromuse also added the capability to authenticate Netcool/Omnibus users against a Lightweight Directory Access Protocol repository, which the company says adds to the security of the system by reducing user and password maintenance. Pricing for Netcool/Omnibus v7 is based on the number of managed nodes.

CA improves mainframe management wares

Integration, automation features added to software suite.

■ BY DENISE DUBIE

For Patrick Barrez, upgrading his current mainframe management software is just an incremental step toward achieving bigger goals. The IS officer of mainframe systems for Fortis Bank in Brussels, Belgium, says a software upgrade will bring him closer to implementing a single management database, using browser-based interfaces and enabling central administration of multiple products.

The software, Computer Associates' Uni-center NetMaster r11 suite, was released last week and includes three mainframe management applications that have been reworked to take advantage of what CA dubs Common Services — which includes incorporating standard code, interfaces and standard databases for use across CA

management systems. Typically, each CA product has a unique user interface and isolated data repository, but with the new technology users will be able to maintain similar interfaces among products and have the option to use a shared database or maintain a separate database for each CA application.

"These r11 releases focus on building reliable and robust APIs with CA Common Services. Using those, [future releases] will be able to have a management database, which would become a common container for all CA mainframe products," Barrez says. "The management database would become a central point, where products would store and read their customization data."

With this release, CA enabled the r11

See CA, page 28

'NET
INSIDERScott
Bradner

Ex-CIA Director George Tenet worries about the Internet. He seems to think that its basic nature and current use presents an ongoing threat that the U.S. government may have to fix.

In his view the threat is such that the use of the Internet, or at least the use of some networks, might have to be restricted. To paraphrase a Vietnam-era quote, Tenet seems to want to destroy the 'Net in order to save it.

On Dec. 1, Tenet spoke on the topic of Democracy and Terrorism at Federal Computer Week Events' Homeland Security and Information Assurance Conference. (www.nwfusion.com, DocFinder: 5028). Press reports varied, maybe because most reporters were excluded from his speech. Headlines ranged from a positive "Tenet touts

A controlled-access Internet?

info sharing" in *Federal Computer Week* (DocFinder: 5029) to the threatening "Tenet suggests limiting the Internet to approved users" in Internet pamphleteer Dave Farber's Important People list (DocFinder: 5026).

The main thrust seems to have been that the most important thing that can be done in the fight against terrorism is to properly share data between the federal government and state and local officials and "to the lowest levels of our society to let them take action." But to share data this way requires a trustworthy network, and Tenet doesn't think the Internet qualifies.

He is both right and wrong.

Part of the trustworthiness Tenet is worried about is that of the Internet infrastructure itself. That could be better, and it is (slowly) getting better.

Tenet wishes there were a useful public key infrastructure but, as he points out, setting up a national or international PKI is "a daunting task" and one that I don't think will be done anytime soon. And maybe that's for the best considering the double-

edged-sword nature of a PKI in that it makes anonymity very hard. You may not desire anonymity for a terrorist but you might find it quite important if you needed to contact an AIDS support center or if you were a whistleblower or undercover police officer. I expect that an application-specific PKI just for the information exchange function is a lot more likely to be deployable and would have fewer negative side effects.

Tenet would like industry to lead the way by "establishing and enforcing" security standards and by delivering products with a higher level of built-in security. That would help a lot but it is nowhere near enough. People who put data onto the Internet need to get some clue about security. California is in the process of notifying 1.4 million people that their private data might have been compromised because data that had no business being anywhere near the Internet was on an Internet-connected machine.

Tenet said that if the Internet could not be made secure, then maybe the govern-

ment would have to build separate networks for tasks such as information distribution. There are many reasons why this is an expensive and generally pointless exercise, some of which I talked about more than three years ago (DocFinder: 5027).

Tenet's comment that access to the Internet might need to be limited to people who can show they take security seriously led to the scare headline in Farber's posting. An attention-grabbing headline, but as likely to happen as limiting access to the phone network to those who promise not to talk about anti-U.S. activities. And, sadly, about as likely to happen as people not putting data that should not be public in a public place such as the Internet.

Disclaimer: Harvard gets its share of attention-grabbing headlines, mostly good. But I did not talk to anyone at the university about this particular one, so the above is my own ramble.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sob.com.

CA

continued from page 27

products to integrate with each other and with other Unicenter management software. The applications now are integrated directly with CA's ServiceDesk software, which will let IT managers automate the generation of trouble tickets off the mainframe and track them alongside distributed network services.

Unicenter NetMaster r11 applications run on the mainframe under zOS as a task and feature a built-in Web interface. IT managers assign an IP address, connect the software to it and the software starts monitoring the network stack on the mainframe, much like a sniffer would monitor traffic in a distributed network. CA product pricing is based per measured workload or per million instructions per second (MIPS). The company says customers will be charged based on the number of MIPS consumed. It declined to provide further pricing information.

The added integration among the products will help customers use less staff time to manage mainframes and enable lower-level staff members to manage complex systems. For example, systems administrators familiar with one CA mainframe management application will be able to easily work with another because the software will use the same language to describe events, and present data in the same format and pull data from a shared database.

"These features will certainly decrease the number of involved product administrators and the time to implement a product," Barrez says. "The management database will also provide role-based management. This means that the displays adjust based on your role, which is important for a large organization like ours."

His company has a staff of 30 focused on managing two mainframe data centers, and he says it has no plans to reduce the mainframe environment. CA is banking on the fact that mainframes will continue to be a large part of customer data centers.

"CA is refocusing on the mainframe and putting more investment dollars into managing it," says David Hodgson, CA's senior vice president of mainframe systems product development. "CA knows the mainframe isn't going away, and customers need a better way to manage it."

CA says mainframe management software makes up about 50% to 60% of the company's overall revenue, and it plans to aggressively increase that figure. Specifically, for the past three years CA has seen 3% steady growth per quarter in its mainframe business. Future product developments such as the shared code will help CA compete with companies such as BMC Software, IBM's Tivoli software and IBM's recently acquired Candle technology, and ASG Software Solutions for mainframe management dollars. ■



More online!

What shape will technology take in 2005? Be the first to see top solutions that will affect networks at an upcoming Tech Tour event called The 2005 IT Road Map.

DocFinder: 4446

Commerce One patents auctioned for \$15.5 million

■ BY GRANT GROSS

About 40 patents owned by bankrupt software vendor Commerce One were auctioned for \$15.5 million in a San Francisco bankruptcy court last week.

The winning bidder, JGR Acquisitions, has kept quiet about its plans for the patents, which cover Web services technology. JGR attorney Mark Mullion of the Dallas law firm Haynes and Boone was not immediately available for comment.

Commerce One, which offered products for automating and integrating business processes across networks, filed voluntary petitions for relief under Chapter 11 in October.

The rest of Commerce One's remaining assets were sold for \$4.1 million to Commerce One Acquisitions, a company formed by ComVest Investment Partners II

and DCC Ventures, two large Commerce One creditors, says Commerce One lawyer Craig Prim of the law firm Murray & Murray.

Earlier this month, Lee Van Pelt, an attorney at Van Pelt & Yi, estimated the patents would sell for up to \$10 million.

The patents cover methods for companies to communicate with each other and provide certain types of information when carrying out machine-to-machine transactions over the Internet. Patents from the company, which was a pioneer of electronic marketplaces, could cover e-commerce technologies widely used by other companies, according to analysts.

Filing a reorganization plan and paying off creditors is the next stage in Commerce One's bankruptcy proceedings, Prim says.

Gross is a correspondent with the IDG News Service.

Avaki

continued from page 27

Also new to Avaki 6 is Studio, a modeling environment based on the open source development platform Eclipse. Studio is designed to let users build views of the data they want integrated using point-and-click tools that organize metadata from available data sources. Those views can be shared and reused, in case future projects require similar data combinations.

"The biggest challenge will be to grow to a size where it can persist long-term," Friedman says. It's a challenge not only for Avaki but also for similar-sized competitors in the enterprise information-integration market, including Centerboard, Composite Software, MetaMatrix and Snapbridge Software, he says.

In addition to these specialists, Avaki competes with larger players such as IBM with its DB2 Information Integrator software and BEA Systems with its WebLogic integration tools.

An initial pilot-scale rollout of Avaki 6 costs about \$50,000, while a full enterprise deployment ranges between about \$150,000 and \$250,000, Muzilla says. ■



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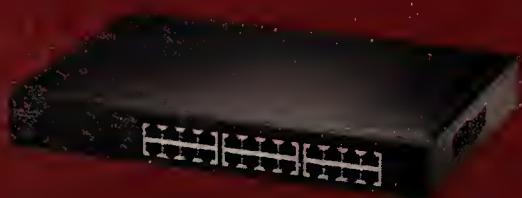


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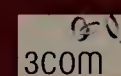
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Service Providers

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Cogent expanding base through buys

■ BY DENISE PAPPALARDO

Cogent Communications is continuing to gobble up acquisitions, with its focus now turning more to buying customers rather than physical assets.

The company recently inked its sixth acquisition of the year — 13 since 2001

— when it paid an undisclosed price for 2,400 dedicated Internet access customers in 23 U.S. markets from Web hosting service provider Verio, a subsidiary of NTT Communications. Verio says it is narrowing its service line to focus on more-complex managed services for enterprise customers.

The 2,400 Verio customers are being added to Cogent's network over the next 60 days, says Cogent CEO Dave Schaeffer, bringing to 7,800 the company's total customer base.

Cogent's last four acquisitions, including Verio, have been aimed at building up that base, Schaeffer says. Buying PSINet, NetRail and Allied Riser, among Cogent's first acquisitions, let the ISP expand its network reach so that it now offers services in 85 markets in 11 countries.

The company now is focusing on increasing utilization on that network, Schaeffer says. Cogent was running its network at about 4.5% utilization earlier this year. After the Verio acquisition and growth throughout the year, he expects utilization to be just below 7%.

Cogent is one of a handful of ISPs in the U.S. that only offer dedicated Internet access services to businesses. Cogent offers standard T-1, T-3 and high-speed Ethernet services in 1,000 buildings that are directly connected to the ISP's network. Its on-network buildings span 21 markets in the U.S. and 14 markets throughout Europe.

Cogent is not offering managed router, VPN or VoIP services, gaps which one analyst says could prove difficult for the ISP.

"Cogent needs to start breaking out into value-add services," says Daryl Schoolar, senior analyst at In-Stat/MDR. "The cost per DS-0 keeps going down. We're predicting flat to slightly negative growth [for the dedicated Internet access market] over the next three years."

If Cogent offers QoS, VoIP or VPN support on top of its dedicated services it will be in better shape, he says. "It's too easy for users to switch providers for dedicated Internet access today. There's no stickiness," Schoolar says.

Cogent says its focus on bandwidth will be successful over time.

"We have made a conscious effort to provide high-speed Internet connectivity and not offer higher-level managed services or hosting or managed router services," Schaeffer says. The company offers small and midsize businesses quality Internet access at cost-effective rates, he says.

Cogent charges about \$200 per month for a dedicated T-1 port. Customers will pay an additional \$250 to \$1,500 per month for local-loop charges. The ISP says customers in one of its on-network buildings are offered an even better value. Cogent provides a dedicated 100M bit/sec Ethernet connection to the Inter-

Building a base

Cogent has been busy this year building up its customer base through acquisitions. Here are the companies acquired in 2004.

Date	Acquisition
Jan. 6	Verio's 2,400 dedicated Internet access customers.
March 31	Aleron Broadband Services, including assets, users and employees.
Aug. 12	Global Access, a German ISP with 350 business customers.
Sept. 15	Unlimited Fiber Optics, a regional ISP with customers in San Francisco, Los Angeles and Chicago.
Oct. 2	Carrier1 International's network and customers in 14 markets in Germany.
Dec. 3	LambdaNet Communications France and LambdaNet Espana networks.

net for the same price as its dedicated T-1 service.

Cogent's buying spree and focus on Internet access has resulted in stronger revenue. The company reported revenue of \$3 million in 2001, and by the end of last year that figure had risen to \$59.4 million.

Although Cogent is not going after the largest enterprise users, it still has stiff competition from AT&T, Sprint, MCI and smaller players such as Netifice Communications and XO Communications.

According to In-Stat/MDR's Schoolar, smaller businesses have a hard time getting the attention of an AT&T or a Sprint because those service providers are focusing on Fortune 100 companies. That presents an opportunity for Cogent to offer better customer service, he says. But companies such as XO that offer more than Internet access might be more attractive to small businesses that only want to deal with one service provider for all of their telecom needs, Schoolar says.

Cogent started its buying spree in 2001 and bought its most well-known company, PSINet, in 2002. That acquisition transformed Cogent into the ISP it is today. Before, the service provider focused primarily on offering competitive local exchange carrier services. ■

The fed's IT funding fiasco

EYE ON THE CARRIERS

Johna Till Johnson



What are they smoking in Washington? Congress recently cut the budget of the National Science Foundation by \$105 million, or roughly 2%.

That's beyond insane. Today's productivity increases are the direct result of R&D funding — most of it by the government — in the 1970s and 1980s. Government-subsidized IT research in those decades transformed the face of businesses in the 1990s and today. A few figures:

- Research directly drives business, according to the Alliance for Science and Technology Research in America. MIT alone has spun off 4,000 companies with 1.1 million employees and annual revenues of \$232 billion.

- Studies indicate that up to 75% of all economic growth is directly attributed to innovation.

- The primary source of basic research funding is the government. In 2003 it was responsible for 85% of all basic research, most of which was performed in universities and national laboratories.

Bottom line: Research creates jobs and, more broadly, prosperity. Government funding creates technology research. Congress just cut the fuel supply to the greatest economic engine on the planet.

How dumb is that? Let's just say I'd rather have my elected representatives inhaling illegal substances — at least then, the only brains they'd fry would be their own.

But hey, as someone who's made a living from science and engineering for the past couple of decades, I might be just a tad

biased. So let's look at some of the obvious questions you might have:

Q: Won't other agencies, such as the Department of Homeland Security (DHS), take up the slack?

A: No. It's true that some of the most successful initiatives have involved funding from multiple sources (both the NSF and the Defense Advanced Research Projects Agency funded the early Internet, for example). And DHS has been a willing partner in recent funding initiatives that clearly fall within its sphere of interest, such as Internet security. But the DHS quite rightly will focus primarily on its own challenges — and funding only the research that solves immediate problems is shortsighted.

Q: Do we really need publicly funded research? Isn't private investment preferable?

A: Private R&D is necessary, but not sufficient. Quite reasonably, private companies often refuse to share their findings with competitors. Privately funded research often can be tainted. One reason the danger of the drug Vioxx (which is now known to trigger heart attacks) was previously unknown was that the Food and Drug Administration had no funding for independent evaluations. The agency had to rely on research financed by the drug's manufacturer, which failed to pick up any risks.

Q: Isn't this whole issue a politically motivated swipe by Democrats at the Republicans who control Congress?

A: Not according to Rep. Vern Ehlers (R-Mich.), who says: "This decision shows dangerous disregard for our nation's future... Reducing this funding is extremely shortsighted."

Amen, Ehlers. Let's hope your colleagues on both sides of the aisle are listening.

Johnson is president and chief research officer at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

7:02 am

Section



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Technology update

■ AN INSIDE LOOK AT
TECHNOLOGIES AND STANDARDS

Trusted chip assures endpoint integrity

■ BY THOMAS HARDJONO AND
NED SMITH

Today, network connection requests by clients typically are granted or denied based on a client's ability to prove some or all of his credentials, including passwords, machine certificates and user certificates. But this approach to security ignores the possibility that the client platform contains malicious code such as viruses, Trojans or malware that can spread through the client's network.

One solution is trusted hardware, which is based on chips that can be programmed with digital keys, passwords and certificates that are tamper-proof. Embedding trusted hardware into computing systems provides a reliable, secure way to determine endpoint integrity of clients, and protect networks against internal and external attack. Invalidated or unauthorized systems cannot connect.

The Trusted Computing Group (TCG) was formed last year to develop specifications to be used as building blocks for trusted computing and trusted hardware. The vendor association has 90 members and includes any company that wants to join. TCG's Trusted Platform Module (TPM) is a

specification for a hardware chip that stores digital keys, certificates and passwords.

As the foundation for trusted hardware, TPM provides a strong measure of client and server integrity that must be satisfied before another platform is allowed to connect to the network. The tamper-resistant chip holds keys and certificates associated with the chip and the computing platform on which it resides. Verifiers therefore can decide when it is safe to open the network to a connecting platform.

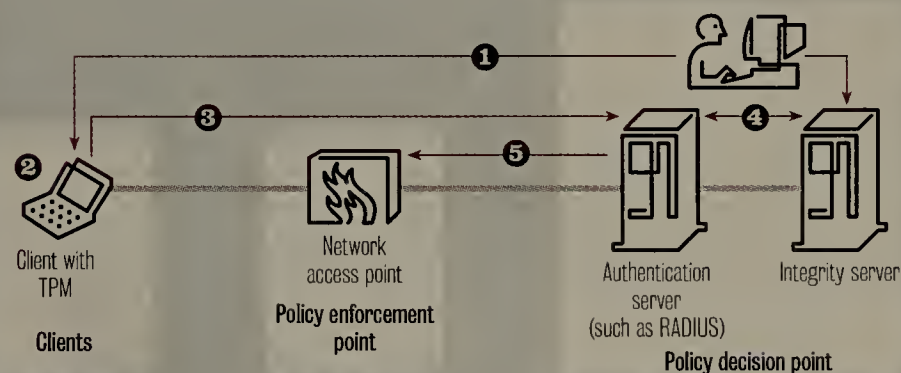
Trusted platforms implement integrity measurement and integrity reporting using measurement code and platform configuration registers within the TPM hardware.

A trusted platform contains integrity measurement engines and/or agents that collect integrity-related data and store the results in the TPM hardware's platform configuration registers. Integrity measurement engines are verified by other integrity engines as part of the platform's boot-up and operational processes, with a resulting chain of established trust emanating from the TPM chip. The TCG believes the TPM-based approach to integrity measurement and reporting distinguishes its solution from other network connection proposals the IP networking industry is considering because it provides an unassailable barrier.

An IT administrator can program a TPM chip in each client to enforce security policies. After a user platform is booted up, it performs integrity measurements and requests connection to an authentication server. The authentication server forwards the request to the integrity server that verifies the client's integrity. If the client is found to be in the correct configuration with the appropriate BIOS, operating system, patches, anti-virus programs and other elements,

TPM
The Trusted Computing Group's Trusted Platform Module (TPM) is a specification for a chip that stores digital keys, certificates and passwords used to determine the integrity of endpoints.

■ HOW IT WORKS



- 1 IT administrator sets platform configuration registers and other platform security policies inside TPM chip.
- 2 User platform boots up into a pristine state and performs self integrity measurements.
- 3 Client requests network connection to the authentication server.
- 4 The authentication server forwards the request to the integrity server, which performs integrity verification on the reported client platform integrity measurements.
- 5 If the client is found to be in the correct configuration (including hardware, BIOS, operating system, patches and anti-virus), the client is granted network access.

the client is granted access to the network.

The TCG also has developed an API called the TCG Software Stack. The association's Trusted Network Connect subgroup is hammering out standards for network device and platform authentication based on core security technologies. Through trusted network connection protocols, platforms can be authenticated before being given full network access. A strong hardware-protected root-of-trust is needed to ensure that malware and improperly configured soft-

ware cannot report an erroneous status. The TNC specification is scheduled to be released in the first half of next year.

Without TPM-based trusted platforms on the network, a client that seeks connectivity to a network can become the entry point for sophisticated attacks.

Hardjono and Smith are joint chairs of the Infrastructure Working Group in the TCG. They can be reached at thardjono@verisign.com and ned.smith@intel.com.

Got great ideas?

■ *Network World* is looking for great ideas for future Tech Updates. If you want to contribute a primer on a specific technology, standard or protocol, contact Amy Schurr, senior managing editor, features (aschurr@nww.com).

Ask Dr. Internet

By Steve Blass

I was confused by your answer regarding winmail.dat (www.nwfusion.com, DocFinder: 5034). The file cannot be opened traditionally, at least to obtain what the receiver believes to be valuable contents. Rather, it's used internally by Outlook to determine how to format the text. Mail systems that don't understand how to use the information display it as an attachment. It's been a confusion for years. Microsoft explains how to avoid the issue at

DocFinder: 5033.

That column generated lots of e-mail. My answer was about how to extract file contents when a winmail.dat file arrives in your in-box. You are correct, sending the mail as plain text in the first place solves the problems. The utilities I pointed to are needed only when you have to get into an attachment that cannot be re-sent in plain text. The most interesting solution from a reader was

to open the winmail.dat file in Notepad to identify the correct filename for the attachment, then rename the winmail.dat file with the correct extension and then open with the appropriate application. This is reported to work for all Office file types and even others.

Blass is a network architect at Change@Work in Houston. He can be reached at dr.internet@changeatwork.com.

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Ruby, a gem of a language

and Ada ...exception handling features, like Java or Python ... is a complete, full, pure object-oriented language ... needs no variable declarations ... can load extension libraries dynamically if an [operating system allows... [and] features [operating system] independent threading."

This last point is very interesting, as you get multithreading regardless of whether the operating system supports it — even on MS-DOS! We can see you on Christmas day, decked out in your festive red jammies, eggnog in hand, the smell of turkey in the air, laptop on lap, humming a merry carol while learning Ruby.

First, go to DocFinder: 5037 and download the latest release (when we did this the site was very slow). Ruby, of course, is open source, so you can build it from one of the three source versions: The stable release version, the stable snapshot (which might be buggy because it is the stable release version with new and possibly untested stuff), or the nightly development snapshot, which is for bleeding-edge test pilots.

Ruby also is available as binary distributions for Linux and Windows. You can get Red Hat Package Manager installation files for RPM-based Linux distributions from www.rpmfind.net, and you can use the apt-

get utility for Debian dpkg-based systems.

The Windows version contains everything you need in a single Windows installer.

An important part of the Windows version is the inclusion of the Cygwin library (www.cygwin.com). The full Cygwin release provides a Dynamic Link Library (DLL) that acts as a Linux API emulation layer for Windows along with a collection of Linux-derived tools.

Note that Cygwin is not a way to run native Linux applications on Windows or a way "to magically make native Windows apps aware of Unix functionality, like signals, ptys, etc." You need to rebuild your applications from source if you want to take advantage of Cygwin functionality. The Windows release of Ruby installs just the DLL.

With Ruby installed you have several choices of how to create and run programs. The least satisfactory is to execute the Ruby interpreter under a shell (we're using Windows here), enter the code and then enter an end-of-file character:

```
C:\Documents and Settings\Gearhead>
ruby
puts "Hello world!"
^D
Hello world!
C:\Documents and Settings\Gearhead >
```

A better interface is Interactive Ruby, a Ruby shell with full command-line editing and the ability to run multiple, concurrent sessions. Interactive Ruby also shows the evaluation of each line of code entered:

```
C:\Documents and Settings\Mark>irb
irb(main):001:0> puts "Hello world!"
Hello world!
=> nil
irb(main):002:0>
C:\Documents and Settings\Mark>
```

Interactive Ruby is very powerful, but even more powerful is FreeRIDE, the Free Ruby Interactive Development Environment (IDE details at DocFinder: 5038) which is bundled in the Windows distribution. FreeRIDE provides a full IDE that is cross-platform, international, has a plug-in architecture and provides code editing and navigation (see DocFinder: 5039 for screenshots).

FreeRIDE also is planned to support Extreme Programming, features that make it easy to use many practices that have been popularized by Extreme Programming (see DocFinder: 5040).

Next week, a quick intro to the Ruby language. Pearls of wisdom to gearhead@ gibbs.com.

As we head toward Christmas what could be more festive than learning a new programming language? As an early present (ho-ho-ho), we bring you a fascinating and highly useful language called Ruby.

Why would you want to learn yet another language? Well, Ruby is powerful, flexible, understandable, portable and simple. And it is free. (Also see "Thirty-seven Reasons I Love Ruby" at www.nwfusion.com, DocFinder: 5036).

Created by Yukihiro Matsumoto (known as "Matz" to the Ruby community), Ruby runs on Unix, DOS, Windows 95/98/ME/NT/2000/XP, MacOS, BeOS (where it is called RuBe) and OS/2.

The Ruby site (www.ruby-lang.org) describes the language thusly: "Ruby is the interpreted scripting language for quick and easy object-oriented programming. It has many features to process text files and to do system management tasks (as in Perl) ... has simple syntax, partially inspired by Eiffel



Cool Tools

Quick takes
on high-tech toys
By Keith Shaw

Wireless device could wreak havoc

tional adapters to the system, although you can use two sets within the same environment without interference. The system creates a 1.5M bit/sec connection over the wireless portion of the link, and Logitech says the devices can operate up to 100 feet apart (although walls and other obstructions could shorten the range).



Logitech's Play Link lets you connect gaming consoles to a network with no broadband connections. It's easy to install but also can create headaches for IT.



The problem the Play Link creates is that the system basically works with any Ethernet-enabled device, including laptops. If your company has a problem with rogue users buying consumer access points and plugging them into a wall jack at work, they now can buy a Play Link system, plug in one box to the Ethernet plug in the wall, and plug the other one to their laptop and get a wireless connection (although with only 100 feet of coverage). Even if

you have a wireless LAN rogue access-point detection system, it might not be able to detect the Play Link, which uses 900 MHz.

We tested the Play Link at the office and found that over a 10M bit/sec link we could connect our laptop to the Play Link boxes and get an Internet connection. The good news is that over a

100M bit/sec port, which most of our Ethernet wall plugs are configured for, the Play Link did not operate.

But if you have a network with dedicated 10M bit/sec ports, you can use the Play Link to create a de facto wireless connection. So while one problem is solved on the consumer side, it creates a potential problem for the IT network manager at work.

Shaw can be reached at kshaw@nww.com.

Sometimes products that solve one problem cause others down the road. Such is the case with Logitech's Play Link wireless adapter.

Let's start with the problem it solves: Aimed at consumers, the Play Link system (\$100, due out this month) consists of two wireless devices that let you connect Ethernet-enabled devices such as gaming consoles (such as PlayStation 2 or Xbox) to a home network. The wireless portion of the network is an encrypted 900-MHz link, Logitech says.

When used with a gaming device, it lets you play online games without having to be near a broadband connection. One Play Link box connects to a cable/DSL modem or a broadband router, and the second connects (via Ethernet cable) to the gaming device. Similar wireless Ethernet adapters use 802.11b or 802.11g wireless technology, but that requires configuration settings, such as knowing the Service Set Identifier (SSID) or a Wired Equivalent Privacy (WEP) key. Because the Play Link uses the 900-MHz frequency, there are no SSID settings or WEP keys to worry about. The system truly is plug and play — just connect and power up, and within seconds your gaming device or other system with an Ethernet port has a network connection. The two boxes are pre-paired, which means you cannot add addi-

We tried the system with our PlayStation 2. Connections were easy. We plugged in the Ethernet cable to the game console with one box and the router with the other box, then plugged in the power adapter and booted up the game.

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ON TECHNOLOGY

John Dix

Take 2 for conferencing start-up

While instant messaging is rampant in business, it is not yet a rampant business tool. That's one lesson learned by start-up Convoq, which last week released Version 2.0 of ASAP, what it now calls a Web conferencing tool.

We first looked at ASAP when it was introduced in February (see www.nwfusion.com, DocFinder: 5048). At the time, Convoq called the hosted application an instant meeting tool because it adds video and Web conferencing to IM.

ASAP enables customers to use IM to invite people to meet right away or "as soon as present" (hence the ASAP name), and then lets them choose their method of communication, be it simple chat or an audio or video conference.

All connections go through Convoq's data center, and Flash is used to build the user interface in real time on participants' machines. (Obviously if invitees don't have cameras any video will be only one-way.) Participants can be running different flavors of IM.

But IM isn't today where company founder Charles Digate thought it would be. While IM penetration in business is high, corporate acceptance of it as a business tool is relatively low, he says. "We're ahead of the market."

So the goal with Version 2.0 of ASAP is to sidestep IM; 2.0 leverages presence but is not IM-based. The most important advance is the ability to publish ASAP links in e-mail or on blogs or Web sites.

On a Web site, for example, a company can offer a button saying "click here to talk to a representative." Hitting the button opens a small form calling for the user to fill in his name, the subject and his e-mail address (this form isn't customizable, which seems like an oversight). After submitting the form, a corresponding box pops up on the screen of a company representative, indicating a customer wants to communicate.

The representative then can start a chat session and, as necessary, evoke other tools, such as audio and video conferencing and PowerPoint presentations.

The "click to connect" buttons are created using a short form and the output can then simply be copied to Web pages, e-mail signatures.

Digate says a \$250-per-year user license lets an individual hold unlimited meetings with up to 15 people. Conference room licenses range from \$2,500 to \$10,000 per year for meetings with 50 to 200 people.

This approach makes more sense than waiting for businesses to embrace IM.

— John Dix
Editor in chief
jdix@nww.com

Monoculture not inevitable

In his BackSpin column "Real IT and fake accounts" (www.nwfusion.com, DocFinder: 5022), Mark Gibbs states, "Computer monoculture is unavoidable." That's not true.

Heterogeneity has a cost, yes, but it's not always extreme, and the benefits of being able to pick best-of-breed systems for different tasks often outweigh those costs. For years my organization has supported labs full of Windows machines using Solaris and Linux servers. We have managed Linux desktops for our researchers and Windows for our administrative staff, and we make it all work. And we have a "real IT organization."

Gibbs is right in that the more proprietary things get, and the further away from standards they stray, the higher the cost of heterogeneity. But it's oversimplistic to suggest that the cost of heterogeneity is always so high that "there's no way that any real IT organization can afford to create an IT infrastructure that isn't a monoculture."

John DiMarco
IT director
Department of Computer Science
University of Toronto

History repeats itself

History has an interesting way of repeating itself. The hardware and software features Mark Gibbs discusses in his BackSpin column "Virtualization will own the enterprise" (DocFinder: 5023) remind me of the hardware and software environment in which I worked at Amdahl 17 years ago.

Like the Intel x86 architecture, mainframes complied with IBM's specifications, the 390 architecture. This architecture specified the CPU, memory opera-

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

opinions!

tions, I/O operations and lots more. This allowed plug-compatible manufacturers to plug in their machines in place of IBM's. This created the ability to swap in faster machines without any recompiling or rework of applications.

Like VMware, IBM's VM operating system created and managed virtual machines. Operating systems running under VM functioned as if they had the whole machine, when, in fact, they had a subset of the resource. Operating systems like IBM's MVS and Amdahl's UTS could determine they were running under VM and make changes to their operation and accounting accordingly.

Amdahl and IBM moved the virtual machine concept down into the firmware and hardware, and in doing so dramatically improved the performance and security of the virtual machines. This is likely to be the next "advance" in the glass house. I just hope that they study all the blood, sweat and tears that went into developing it the first time so we, as users, don't have to experience the pain all over again.

John Thompson
Pleasanton, Calif.

Remember to delete

Regarding the story "One man's trash is another's cheap PC" (DocFinder: 5024): Before donating used computers to Goodwill Industries or other agencies, I hope enterprise IT administrators are remembering to delete data on hard drives. Of course, they won't need secure delete if the drives are encrypted. For more information, interested readers should check out Simson Garfinkel and Abhi Shelat's study on the ability to recover unencrypted sensitive data on discarded hard drives, "Remembrance of Data Past: A Study of Disk Sanitization" (DocFinder: 5025).

Steven Lerner-Wright
Marketing communications director
PC Guardian Technologies
San Rafael, Calif.



More online! www.nwfusion.com Find out what readers are saying about these and other topics. **DocFinder: 5021**





STRATEGY SESSION

Jeff Kaplan

A year ago in this space, I suggested 2003 would be remembered as an inflection point in which the IT and telecom industries began to move from a product/technology orientation toward a new services-oriented model (see www.nwfusion.com, DocFinder: 4954). I predicted this movement would continue to evolve in 2004, fueled by growing acceptance of on-demand/utility computing and managed services models. As we approach 2005, the question now is whether vendors, carriers and resellers truly can deliver on their utility computing and managed services promises.

Given the significant proportion of traditional outsourcing deals that fail, it is not surprising that managed services have become an attractive alternative for many users looking to offload some of the hassles associated with IT and networks. Unlike traditional outsourcing arrangements that typically entail the wholesale transfer of an entire IT or network operation, today's managed services let users shift day-to-day management responsibility to service providers incrementally, test the service provider's delivery capabilities on a pay-as-you-go subscription basis and mitigate their risk.

Rising demand for managed services has led Cisco to acquire NetSolve, a managed network service provider, in September (see DocFinder: 4955) and Sun to acquire SevenSpace, an IT and application services provider, last month. These acquisitions are newsworthy because both vendors generally had purchased only technology start-ups.

In September, Sun also jumped on the utility computing services

Services ready for prime time

bandwagon when it unveiled a managed, on-demand grid computing service starting at \$1 per processor, per hour. By shifting from a traditional system sales model to a managed services approach, Sun clearly is responding to users' growing preference for pay-as-you-go services. Sun's aggressive pricing schedule also has brought a new level of price competition to the utility computing market.

On the network side, AT&T unveiled its WebService Connect service, which creates an online, extranet-type environment in which companies can develop applications and then share them with business partners on an on-demand basis. The service is built on a service-oriented architecture platform developed by Grand Central Communications that lets corporations and government agencies more easily create, share and manage electronic supply-chain capabilities.

Cynics might see these offerings and acquisitions as simply the desperate moves of companies that are facing stiff competitive and severe financial pressures. One industry event suggests otherwise. Salesforce.com, a leading provider of Internet-native applications, had one of the most successful IPOs in 2004 and announced an 81% increase in subscribers over the past year, resulting in an 82% revenue increase.

Bottom line? The demand for on-demand/utility computing and managed services is growing. The challenge in 2005 for vendors, carriers and resellers will be how to package, price, position and deliver these services successfully. For users, the challenge will be how to use these services more effectively to achieve their business objectives.

Kaplan is managing director of THINKstrategies, a consultancy in Wellesley, Mass. He can be reached at jkaplan@thinkstrategies.com.

Bottom line?
The demand for on-demand/utility computing and managed services is growing.



INDUSTRY COMMENTARY

Frank Dzubeck

In 2004 radical changes shook the corporate IT world. Corporate business-process componentization and transformation, along with the cost savings of outsourcing and out-tasking, led to internal reassessment. Business processes became integrated with corporate software. More corporate workers

became mobile and untethered, using home or wireless access. Security, policy and management became major issues instead of afterthoughts. Partners, suppliers and even customers became required to integrate with the corporate network and IT applications. Packaged applications software became dominant in an industry once centered on custom software development. Blade server hardware sales began to eclipse chassis-based server sales. New respect developed for server consolidation on the mainframe. All communications, with the exception of carrier-supplied bandwidth, began to commoditize based on industry-wide standards such as IP, Session Initiation Protocol and XML. And the industry began to focus on new IT technology such as grids, on-demand/utility computing, service-oriented architecture (SOA) and software componentization.

Why the sudden focus on corporate IT change? Corporate business motivation has shifted away from pure profit to revenue and growth. This is an important fact that is driving our current economy. Since the late 1990s, corporations have drained every bit of excess fat, including management, employees, inventory, process redundancy, overhead and facility assets, to achieve increased profitability. With profit engines in place, companies now must shift gears and focus on revenue. To achieve ever-increasing revenue, they must focus on customers and grow organically or through acquisition. The effect on IT organizations is simple yet profound — make do with less budget and staff, yet accommodate growth. This cannot be accomplished without radical change. IT technology is now an integral part of all businesses and, in some cases, is the business.

Bringing it back home in 2005

One significant outcome of this re-evaluation of the IT function is the return of the services concept. IT is the keeper of the corporate assets and has assumed the responsibility of providing all technology services required to meet revenue goals. Outsourcing of IT technology has reached its maximum profit and must be tempered with ever-increasing "insourcing" to accommodate maximum revenue growth. This takes on the form of a hybrid IT organization that mixes outsourcing and insourcing, integrated through industry standards, to deliver whatever technology services are required to meet business needs.

Two examples of this trend come to mind. The first is the use of on-demand/utility computing to support corporations. If constructed properly, computing, storage, application software and network resources can be added or subtracted, yet integrated with existing corporate resources to accommodate business growth without major capital expense or time delay. The second example is even more intriguing: Through the use of an SOA and software componentization, software development and maintenance can be performed within a corporation rather than be outsourced. Industry standards-based modeling and development tools that use the Unified Modeling Language and Business Process Execution Language within a model-based software development SOA front end will let intellectual property owners or developers internally replace rather than outsource programmers.

These IT trends will not happen overnight but will become the over-the-horizon implementations for 2006 and 2007. What does that leave for 2005? Educating management and staff, hiring, planning, conducting analysis, evaluating technology and selecting vendors for future implementations. This is not just an IT issue. If the business and IT worlds are to merge, both parties must be in sync at the CXO layer of the corporation.

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Corporate business motivation
has shifted away from pure profit to revenue and growth.

ON THE LEADING EDGE OF RFID

Early adopter Gillette orders 500 million chips, but moves ahead cautiously. By Joel Shore

THE WORLDWIDE LEADER IN RAZOR BLADES SAYS RADIO FREQUENCY IDENTIFICATION WILL KEEP IT A CUT ABOVE THE COMPETITION.

"We call it perfect retail," says Jamshed Dubash, Gillette's director of auto-ID technology. "It's having the right product at the right place at the right time."

Of course, it's still a dream at this point. Being able to track individual consumer packaged goods is still years away, held at bay by adolescent technology and high costs. But for Gillette, tracking cases of razor blades from distribution center to retail receiving docks soon will move from pilot phase to limited-scope reality.

Even at the case level, the financial benefits are enormous. Discrepancies between invoices and actual inventory received by a retailer can be eliminated. Human miscounts won't occur. Pallets of merchandise will no longer get lost in cavernous warehouses. With implementation of RFID by trucking companies, tracking inventory throughout the supply chain and minimizing theft of in-transit goods becomes possible.

"Eventually we'll have a new level of transparency," says Paul Fox, Gillette's director of global external relations. "We won't see quite end to end, but we'll see from our manufacturing floor into the retailer's back room."

Gillette is moving with care, figuring out the best place to affix tags, maximizing read rates, getting multiple vendors to work together and modifying systems to leverage the collected data.

It's slow going and a far different scenario than the one envisioned by RFID proponents who were fired up by reports that Gillette had

ordered 500 million tags from Alien Technology in January 2003.

"Our agreement with Alien gave us the option to purchase up to half-billion tags," Fox says. "We have not done this."

Alien spokesman Tom Pounds concurs: "I can tell you that Gillette has taken delivery of more than 20,000 tags; they have not moved too far into the larger commitment."

On board early

But Gillette has long been committed to RFID hardware technology and the electronic product code (EPC) data — an electronic bar code — that each tiny tag carries. In 1999, the company was a founding member of the Massachusetts Institute of Technology's Auto-ID Center, an academic research effort that laid the technical groundwork for today's products.

By establishing its participation early on, Gillette became a key player and now is working with major retailers, including Wal-Mart and the U.K.'s Tesco, to develop standards and agreements on how data and processes are shared. By viewing its own distribution center and IT capabilities as a set of small, reusable Lego block-like modules, Gillette has been able to work with a variety of technology partners, each of which offers expertise in a different area.

"You don't want to get into a situation where one vendor dictates," Dubash says. "If you modularize the interfaces, you should be able to use any vendor at any point in the entire chain."

Gillette's main challenge is to design long-term solutions that are

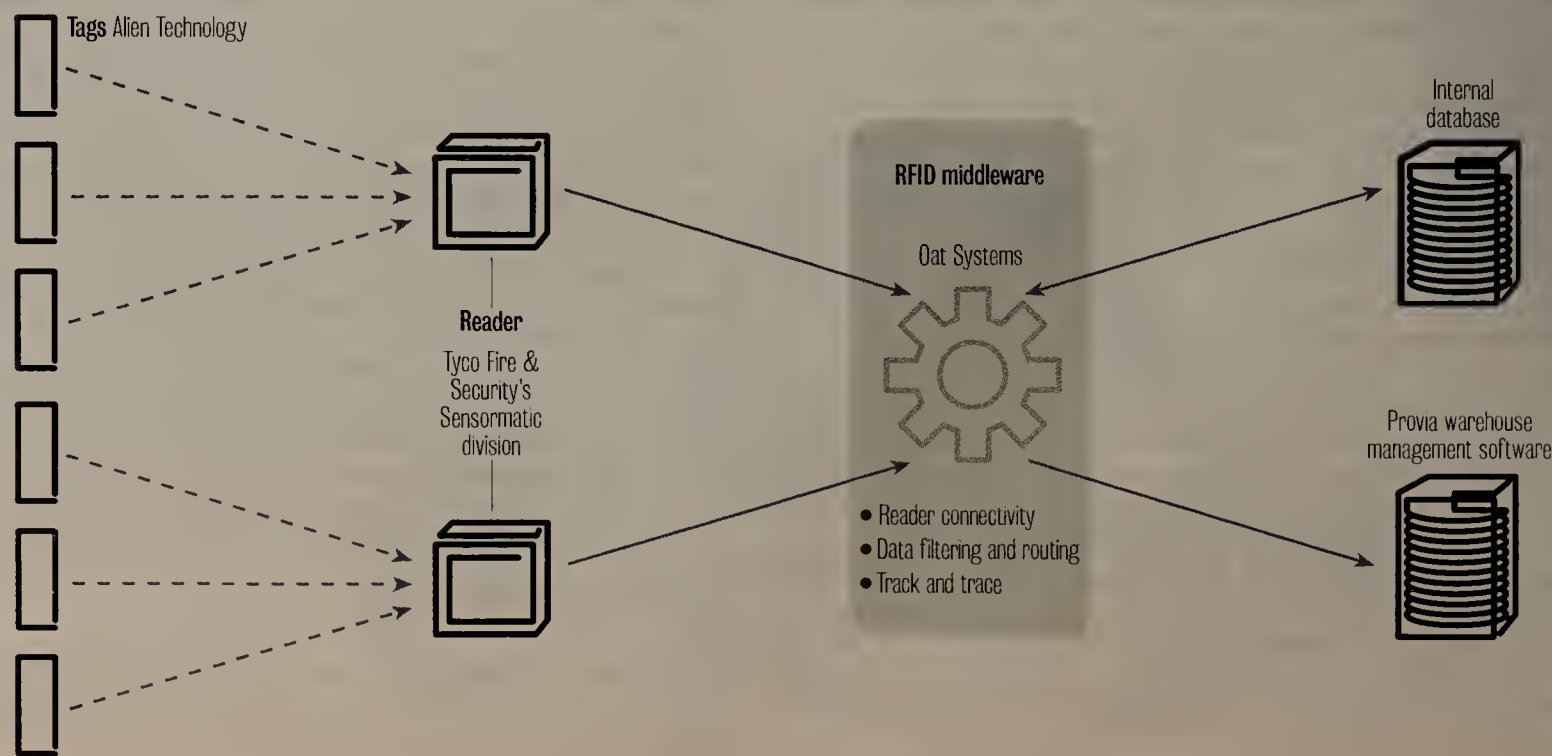
See RFID, page 45



Alien Technology uses a squiggle antenna design on its ultra-high-frequency RFID tags. The tag shown here is slightly smaller than actual size.

Gillette's RFID architecture

Gillette is piecing together an RFID system by using products from a number of vendors. Tags from Alien Technology are affixed to cases and pallets. Information from the tags is wirelessly gathered by readers from Tyco. That data is fed into middleware from Oat Systems and ultimately to warehouse management software from Provia.



RFID

continued from page 44

scalable to mass-production levels and that focus on a range of different software and hardware interfaces. "Once you accomplish this, then it doesn't matter which vendor you use," Dubash says.

The company is doing just that. RFID tags from Alien are read by devices from Alien and Tyco Fire & Security's Sensormatic division.

Middleware from Oat Systems integrates with the readers, filtering and aggregating data for use by warehouse management software from Provia. The intent is to create an "appliance," a combination of fundamental electromechanical components (conveyors, shrink-wrap machines) and RFID components (readers and software) that can be deployed quickly and supported by one vendor.

It hasn't been easy. Although Gillette intended from the outset to use external vendors, it soon discovered that off-the-shelf solutions didn't exist. Modifications were and continue to be made, but not by Gillette. "Provia makes the enhancements and modifications to its own product," Dubash says. That's true for each partner.

At its cavernous Devens, Mass., assembly and distribution center, Gillette is running one production line, affixing RFID tags to cases and pallets of its Venus women's razor cartridge, one product with seven different stock-keeping units. Dubash says the idea is to track both homogeneous and mixed pallets as they ship out the door. "We're studying fundamentals, how to

apply a tag and how to read it in a dense population, for example."

That's a smart move, says Jack Grasso of EPCglobal, the international standards-setting trade group. "There are inherent physical limitations with these tags: They are not easily read through metal or foil packaging or at great distances. Companies that move early to solve these assembly-line challenges will get higher readability levels and greater payback."

Dubash agrees. To assume that all cases on a pallet will be read all the time is "flawed thinking." He suggests the probability of reading each case on a loaded pallet is extremely low. "You can complain about it or accept it," he says.

At the other end of the pipeline, Gillette is one of eight suppliers assisting Wal-Mart with field trials in several Texas stores. Pallets, tagged at the case level, arrive along with merchandise from Procter & Gamble, Kraft Foods and others.

Although Wal-Mart continues to pressure its suppliers to move their RFID programs from pilot to production in 2005, not all will be ready. Will Gillette? Dubash declined to provide specifics, saying that the company continues to learn from its efforts.

The cost of success

RFID traces its roots back to "Communication by Means of Reflected Power," a 1948 research paper authored by a visionary Harry Stockman for the Institute of Radio Engineers (which became the IEEE in 1963). His ideas were first used in a rudimentary 1950s "friend or foe" aircraft identification system. In the 1970s, RFID kept



Tyco Fire & Security's Sensormatic division sells these EPC readers, which capture information from RFID tags.

track of railroad freight cars, something it couldn't do with large bar codes painted on each car. Today, the technology is most often seen in the windshield transponders that drivers use on toll roads. As the decades passed, the technology shrunk and reliability grew.

The cost, prohibitive then, is still an obstacle, but not where you'd think. Although tags remain pricey, only having recently broken the 20-cent barrier, it's the cost of affixing them to cases of merchandise that remains high.

That comes as no surprise to Christine Spivey Overby, a senior analyst at Forrester Research. She projects that a hypothetical manufacturer, manually tagging about 15 million cases per year, would spend more than \$5 million in its first year of RFID deployment, including \$3 million for tags costing 20 cents apiece and more than \$2 million in development costs. Manual "slap and ship" tagging adds another \$469,000 in

labor costs.

EPCglobal's Grasso acknowledges that the cost of the tags and readers remains a barrier to widespread implementation. "That will eventually change as more leaders emerge," he says.

And it is already. In August, Alien began making tags using a new "fluidic self-assembly" technique that integrates all tag-production steps into one automated manufacturing process. It boosts Alien's capacity to 2 billion tags per year and will lead ultimately to "far lower costs," says Alien CEO Stav Prodromou. Only then will it make sense to tag individual consumer goods. It's a far cry from 1999, when tags cost \$2 apiece.

For now, Gillette continues to develop production case- and pallet-level solutions for automated tagging and shipping ("We do not use manual slap and ship," Dubash says) as it gears up for Wal-Mart's 2005 mandated launch and expands pilot programs in the U.S. with Target and Albertsons.

"The familiar UPC bar code will be here for many years and will co-exist with its EPC counterpart," Grasso says. "UPC is still the best solution for the supermarket deli counter or for a pack of chewing gum."

Dubash agrees. "EPC is a parallel technology," he says. "Once this gets ubiquitous — and it will, in 10 or 15 years — it becomes redundant information."

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Product Peek

A quick look at things for your network

■ BY PAUL FERRILL

Every new Linux distribution, particularly from an established vendor such as SuSE, brings with it the question "Is it ready to take on Microsoft on the desktop?" We recently got a copy of the Novell Linux Desktop, which was created to offer an alternative corporate desktop operating system that meets the needs of most structured task workers.

What does a Windows alternative need to be a viable player? First, it has to play well with other Windows machines and servers. It should be able to share files and printers with little-to-no effort. Common application formats, such as Word, Excel and PowerPoint should be supported. Connectivity to corporate e-mail servers, including Microsoft Exchange, should just work.

NLD supports these requirements and more with only a few minor hiccups. The issues we had were minor, and all had a workaround. When NLD is installed, it gives the option of either the KDE or Gnome desktops. Gnome looks a lot like the last version of the Ximian desktop and is the

Novell Linux Desktop

closest in look and feel to Windows XP.

Novell has enhanced the Open Office product suite, including its Evolution for e-mail, contact and schedule management. We could open Word, Excel and PowerPoint files over the network without any trouble. The only glitch was with a few JPEG image files that included a file extension that NLD didn't recognize.

Windows networking is not yet completely seamless. We had some trouble browsing for network shares using the Nautilus utility under Gnome, although we could connect to a Windows share using the 'Connect to Server' menu option. In KDE, we had to enter the share name into an address bar. We would be happier if the process were smoother — especially if passwords were synchronized over the network. The Gnome Personal Settings tool works like the Control Panel in Windows and even has a "New Printer" wizard that makes it easy to connect to a shared printer on a Windows network.

There are ways to handle password synchronization between Linux and Windows, but NLD doesn't offer that out of the box. Another irritation was the default for user

passwords to Data Encryption Standard encryption, which only supports passwords up to eight characters long. To enable longer passwords, manually select MD5 as the default encryption method.

NLD includes a Citrix ICA client and Windows Terminal Server RDP client. We could log on to a Windows 2003 Server box without problems, and it worked great. This might be the ticket for organizations to run legacy Windows applications from a Linux desktop. It will require a Windows Terminal Server Client Access License for each user needing to connect.

Novell's iFolder product makes it simple to synchronize files between multiple computers. The current release included with NLD (2.1) requires an iFolder server to function. Version 3.0, targeted for release early next year, also will operate in a peer-to-peer mode to facilitate workgroup collaboration. Novell released the development of iFolder into the open source community at last year's BrainShare.

Is NLD ready for the corporate desktop? Our answer is a qualified yes. Handling routine office chores using Open Office

Novell Linux Desktop

Novell
www.novell.com

Cost: \$50 per machine with Annual Upgrade Protection, \$35 for CD/DVD media kit, \$15 for e-Software media kit.

Pros: Supports Windows-centric documents just fine. Running applications on a Windows server using Remote Desktop Protocol or Citrix ICA works great.

Cons: Connecting to Windows network share needs improvement. Password integration for seamless network resource access not quite there yet.

for word processing, Evolution for e-mail and Firefox for Web browsing works great. However, connecting to Windows networks still needs some work to become seamless.

Ferrill is a freelance reviewer and writer in Lancaster, Calif. He can be reached at paul.ferrill@verizon.net.



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CLEAR CHOICE

TEST

Enterprise-level
anti-spyware software

INSIDE

Read about FreezeX, an application that denies any attempt to install or run unauthorized computer programs. **Page 48**

Learn about Microsoft's Browser Helper Object programming interface for Internet Explorer. They are DLLs that control your computer while you Web surf. **Page 49**

ONLINE BUYER'S GUIDE

Looking for an anti-spyware detection/removal system from a credible source? Head online to our Anti-Spyware Buyer's Guide, which has product details of at least 18 products for your company. **www.nwfusion.com, DocFinder:5035**

Webroot shines in sweeping up the spyware

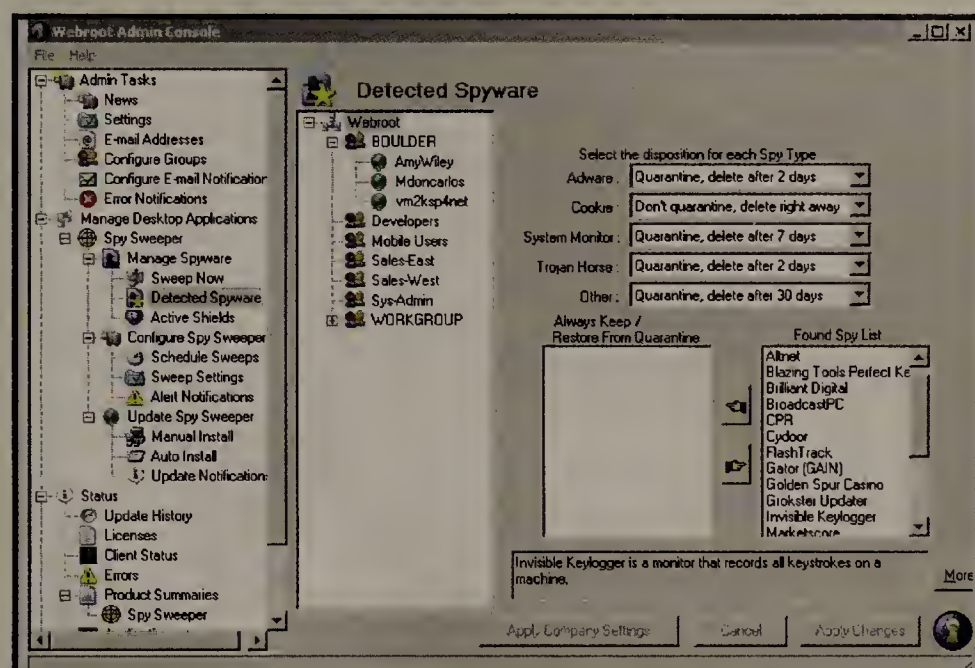
BY BARRY NANCE, NETWORK WORLD LAB ALLIANCE

Like viruses and other harmful programs, spyware is a huge security problem. Worse than a typical virus, a spyware program can send corporate data directly from your company's client computers to an Internet-based data collection facility, such as a shady adware site or other group of bad guys.

The perfect anti-spyware tool detects all spyware, identifies all the files and registry entries associated with the spyware, and safely removes all its traces, remnants and residue. In a corporation, the ideal tool also offers a central console through which network administrators easily can disinfect client computers. The ideal tool is simple to install and deploy, and conveniently updates its own spyware signature list. Status displays and reports give you a quick and accurate picture of how badly spyware is harming your company. A good tool also will be able to detect and remove Trojans, dialers, malware and browser hijackers (see graphic, page 48).

We recently invited several anti-spyware vendors to submit products to our Alabama lab. We tested Webroot Software's Spy Sweeper Enterprise Version 1.5, InterMute's SpySubtract Pro Version 2.5, Tech Assist's Omniquad AntiSpy Enterprise Edition Version 4.0 and PepiMK Software's SpyBot — Search & Destroy Version 1.3.

Webroot's Spy Sweeper Enterprise proved itself the best anti-spyware tool in our tests, winning a Clear Choice



The intuitive Spy Sweeper Admin Console interface lists the spyware that Spy Sweeper has found and displays, by category, the policies for dealing with that spyware.

Award. It contained the most spyware definitions, gave us excellent control over its client agents from a central console, ran quickly and unobtrusively, had an intuitive user interface, and displayed useful reports of its activity.

Find and remove

Spy Sweeper Enterprise is said to thwart about 35,575 spyware programs; Omniquad AntiSpy Enterprise contains about 10,000 spyware definitions; and SpySubtract Pro has about 31,124. The

Net Results

Spy Sweeper
Enterprise 1.5OVERALL RATING
4.3

Company: Webroot Software, www.webroot.com. **Cost:** \$19.98 per seat for 500 to 900 users. **Pros:** Excellent company-wide control over spyware scans; highly scalable. **Con:** No quick-scan feature.

NetworkWorld
CLEAR CHOICEOmniquad AntiSpy
Enterprise Edition 4.0OVERALL RATING
4.0

Company: Tech Assist, www.toolsthatwork.com. **Cost:** \$5,000 for 500 users. **Pro:** Good central control of company-wide spyware scans. **Con:** Has fewer spyware definitions than Spy Sweeper Enterprise.

SpyBot
Search & Destroy 1.3OVERALL RATING
3.0

Company: PepiMK Software, www.safenetworking.org/en/index.html. **Cost:** Free client; e-mail licenses 2spybot.info for Internet Update Server central console component. **Pro:** Quick, accurate elimination of spyware. **Con:** Poor technical support options.

SpySubtract Pro 2.5

OVERALL RATING
2.8

Company: InterMute, www.intermute.com. **Cost:** Starts at \$29.95 per user. **Pro:** Can identify how and when a spyware instance infected a computer. **Con:** No central console.

The breakdown	Webroot Software Spy Sweeper Enterprise 1.5	Tech Assist Omniquad AntiSpy Enterprise Edition 4.0	PepiMK Software SpyBot Search & Destroy 1.3	InterMute SpySubtract Pro 2.5
Spyware identification and removal 30%	5	5	5	5
Ease of use 20%	4	3	2	1
Reports and notifications 20%	4	4	2	2
Installation and deployment 20%	4	4	2	2
Documentation 10%	4	3	3	3
TOTAL SCORE	4.3	4.0	3.0	2.8

Scoring Key: 5: Exceptional; 4: Very good; 3: Average; 2: Below average; 1: Consistently subpar

Enterprise-level anti-spyware software

FreezeX ices executables

If your company prohibits the policy installation of any software on a client once that client has been configured, Faronics' FreezeX (\$25 plus \$45.60 for each client) might be of interest to you. At installation, FreezeX notes which computer programs are already on a computer and deems them "authorized." Thereafter, FreezeX denies any attempt to install or run unauthorized computer programs, whether via removable media or the network. Faronics says FreezeX intercepts more than 80 types of executables, including .scr, .sys and .dll files. We found FreezeX to be a reliable, no-nonsense watchdog against BHOs and every other type of executable we tried to install. You can even use it as a de facto license manager. Its Silent Install option for quickly and painlessly deploying FreezeX remotely across a network works well.



Five common types of spyware

Category	Typical action
Keyboard logger: (aka trackware)	Captures keystrokes (including personal information and passwords) or tracks Web sites you visit.
Trojan:	Enables remote control of your computer by a hacker, often for distributed DoS attacks.
Droneware:	Sends spam or hosts offensive Web images.
Dialer:	Auto-dials area code 900 or expensive long-distance calls via your modem.
Adware:	Pops up advertisement-laden browser windows.

Not-so-fun spyware

- Some spyware sends captured data to North Korean intelligence agency servers. The North Korean government analyzes what it captures, sells the data to criminals and distributed DoS attacks. South Korea's defense ministry recently said that North Korea has trained more than 500 computer hackers to wage cyberwarfare against the U.S. (www.nwfusion.com, DocFinder: 5030). The ministry reported that North Korean militant hackers, who have undergone a five-year university course geared toward penetrating the computer systems of the U.S., South Korea and Japan, are among the best in the world.

- Want to see Web sites that promote the use of spyware for advertising? Head to www.stop-popup-ads-now.com or www.abetterinternet.com. If you visit these sites, please first maximize your browser security level, do not click on any of the links you see and examine your system afterward for possible spyware infection.

freeware SpyBot Search & Destroy contained more than 10,000. Auditing each vendor's list with a sampling technique verified the authenticity and validity of each vendor's spyware definitions.

All four products automatically update their definitions by accessing vendor master lists via the Internet. Spy Sweeper Enterprise updates generally occur weekly, Omniquad AntiSpy Enterprise updates occur every three days (sometimes more frequently) and SpySubtract Pro updates occur every one to two weeks. All four accurately detected and disposed of the 20 examples of miscreant spyware we introduced into our test network (see "How we did it," below).

Spy Sweeper Enterprise includes four server components — an administration console, enterprise database, update server and client server.

The administration console is the user interface for configuring clients, managing spyware definition updates, establishing alerts and notifications, viewing reports and remotely directing client spyware scans, including running an immediate spyware scan on a specific remote client or group of clients.

The enterprise database component stores configuration settings and scan results. The update server automatically obtains the latest spyware definitions from the vendor on the scheduled weekly basis, or an administrator can tell Spy Sweeper Enterprise to retrieve definitions on demand.

The client server module sends configuration settings and definition updates to the clients, and receives the scan results from those clients. On each client, Spy Sweeper Enterprise's client agent scans for spyware — periodically or on demand.

When spyware is detected (either incoming or pre-existing), the client disables and quarantines the spyware. It then sends an alert to the client server, which

records the event in the database and tells the administration console to notify a network administrator. Because Spy Sweeper Enterprise consumes little bandwidth and because you can spread its workload across multiple servers, we found it scales extremely well. Each scan took only about 4 minutes and consumed few resources as it ran unobtrusively in the background on each client.

Omniquad's AntiSpy Enterprise includes an enterprise manager and a component for each client. Any scan it performs can be a quick scan or a complete scan. A complete scan took just over 4 minutes to run, while a quick scan took just over 1 minute. The quick scan appeared to just examine in-memory programs and asked Windows to reveal registered browser helper objects (see "Detecting BHOs," page 49), while the complete scan also searched client hard drives and examined the entire Windows registry file. Besides finding and rooting out pre-existing spyware, the client component catches incoming spyware in real time. With the Enterprise Manager, we could schedule scans to occur daily at a specific time, and we could initiate on-demand scans. Tech Assist says a future version will integrate with Active Directory to store configuration and policy data in the directory rather than separately inside Enterprise Manager.

InterMute's SpySubtract Pro detects spyware by filename and file contents (through its Message-Digest algorithm 5 matching technology). MD5 is a widely used cryptographic hash function with a 128-bit hash value (see www.nwfusion.com, DocFinder: 4953). The program computes an MD5 hash for each suspect spyware file and compares the result with its internal list of MD5 hash values for known spyware. This approach lets SpySubtract Pro identify even spyware operating under an alias. SpySubtract Pro scanned for spyware faster than Spy

How We Did It

We tested each product's ability to correctly identify and effectively remove spyware. We evaluated each vendor's approach to updating its product to recognize new spyware, and looked at the ease with which a network administrator can deploy the product. We also gauged how easily we could administer the deployed product from a central console. Finally, we tested any reports the product produces.

Using Internet-connected computers, we collected 20 instances of both spyware and Web page source code of the sites that distributed the spyware. For testing, we moved the collected spyware material to an isolated, quarantined network not connected to the Internet.

The quarantined test network consisted of 10 clients, running Windows NT/98/2000/ME/XP, Red Hat Linux and Macintosh System 8. The network also contained three Web servers (Microsoft Internet Information Server, Netscape Enterprise Server and Apache), two e-mail servers (Microsoft Exchange and Sendmail), two file servers (Microsoft Windows 2000 Advanced Server and NetWare) and three database servers (Oracle 8i, Sybase Adaptive Server and Microsoft SQL Server). An Agilent Advisor protocol analyzer eavesdropped on the network traffic to show overall utilization and the detailed content of messages.



Sweeper Enterprise, but unfortunately lacked a central console component through which a network administrator could manage spyware scans on multiple clients. InterMute says a central console feature should be available by year-end.

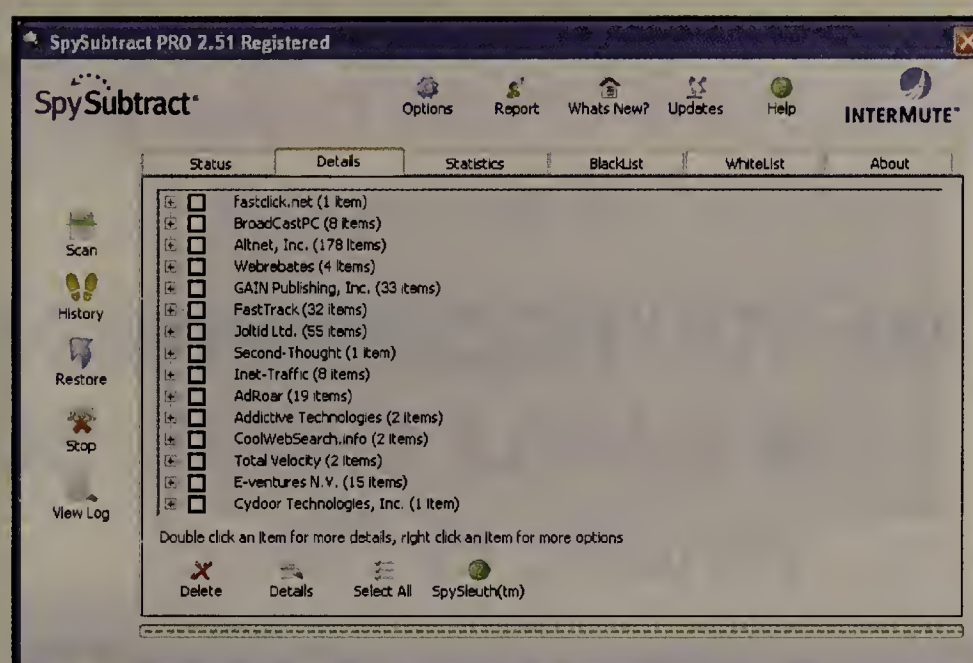
SpyBot Search & Destroy was the fastest scanner we tested. It leverages the knowledge that spyware must anchor itself at a few specific locations within Windows, and the tool always begins its searches in those locations. Based on what it finds, the program then uses its spyware definitions to determine where to look to delete all the files and references associated with a particular spyware instance. The central console component, which supplies client agents with centralized spyware definition updates and configuration data, is called Intranet Update Server. This component contains its own Web server (or uses an existing Web server) that distributes spyware definition updates to clients across a network. The Intranet Update Server itself obtains its definitions from the vendor via the Internet. A network administrator configures the Intranet Update Server to access vendor spyware definition updates on a fixed schedule or on demand. The client component is freeware, but licensing Intranet Update Server requires a donation to the product's author.

In addition to finding spyware, Spy Sweeper Enterprise, Omniquad AntiSpy Enterprise and SpySubtract Pro can delete browser cache data, browser history, cookies and chat history. Interestingly, SpySubtract Pro's SpySleuth module reveals exactly how and when a particular spyware program infected a given computer. All four products did an excellent job of describing and explaining the effect and significance of the different instances of spyware they found.

Spyware management

Spy Sweeper Enterprise had the most intuitive, easiest-to-navigate user interface. Setting spyware scan policies for groups of clients, scheduling scans and viewing reports was all a breeze. AntiSpy Enterprise's user interface wasn't quite as intuitive as Spy Sweeper Enterprise's, but AntiSpy Enterprise additionally lets network administrators establish a whitelist of Browser Helper Objects (BHO) to exclude in its scans. This feature is handy for companies that have programmers who have written in-house, custom BHOs and don't want those BHOs to show up on the list of potential spyware. Spy Sweeper Enterprise has a similar feature, which it calls a keep list.

Spy Sweeper Enterprise and Omniquad AntiSpy Enterprise let you deploy client modules from a central console. Network administrators will need to install SpySubtract Pro and SpyBot Search & Destroy client components individually on each client.

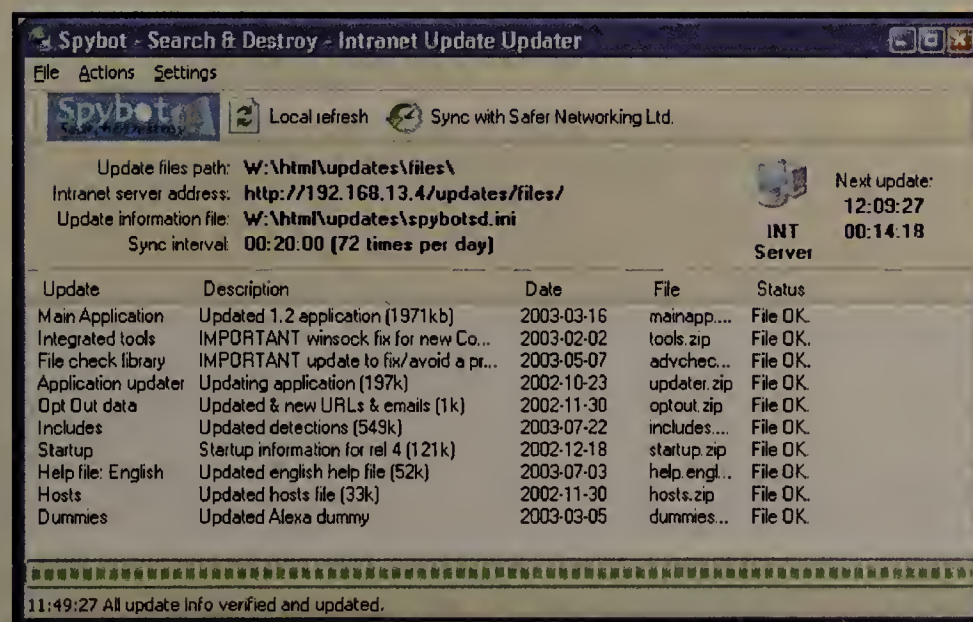


SpySubtract Pro's detail window lists detected spyware by name and can show detailed information about a spyware instance.

Detecting BHOs

The underlying technology behind spyware is Microsoft's Browser Helper Object programming interface for Internet Explorer. BHO programs are not scripts. They are Dynamic Link Libraries that have full control of your computer while you Web surf. A good BHO can turn Explorer into a PDF viewer. A bad BHO can turn the browser into a doorway through which the bad guys can steal your corporate data, make your computers unwitting participants in a distributed denial-of-service attack or throw pop-up ads onto your screen. Spyware also can update itself and even install other software.

BHODemon is a freeware tool for detecting BHOs. It doesn't remove BHOs, but it does let you disable (and later re-enable, if you wish) a BHO. It also makes recommendations about whether a particular BHO is benign or harmful. If you leave BHODemon running in the background, it will watch for incoming BHOs and warn you before they attach themselves to your browser. It has no central console, which means you'll need to visit a sampling of clients to run BHODemon to determine the extent to which spyware is a problem on your network. BHODemon is available from the Web site www.definitivesolutions.com.



SpyBot Search & Destroy's Intranet Update Server keeps clients up to date with the latest spyware definitions.

We also liked how Spy Sweeper Enterprise's administration console could send us an e-mail alert when it detected a spyware instance. This meant we could log on virtually to any client on the network and see the spyware scan results. Omniquad AntiSpy Enterprise's console-free reporting interface also let us monitor spyware scan activity without having to visit the central console.

The reports from Spy Sweeper Enterprise and Omniquad AntiSpy Enterprise identified the clients with spyware, and the types detected. Both products supplied useful detail about the harmful effects of each spyware instance. While both products let administrators set up different policies for groups of users, we felt Spy Sweeper Enterprise offered more sophisticated control settings for individual clients or specific groups of clients.

Within each client, SpySubtract Pro's simple interface consists primarily of configuration and results windows. The results window shows a list of detected spyware. Clicking on an entry caused SpySubtract Pro to retrieve information about the nature and behavior of that spyware instance from its spyware definitions file and display that information.

SpyBot Search & Destroy's user interface was simple and intuitive. SpyBot Search & Destroy can start in either of two modes — easy or advanced — with easy as the default. In both modes, SpyBot Search & Destroy deflects and removes spyware. Advanced mode lets network administrators schedule scans and fix Windows registry inconsistencies spyware causes.

Spy Sweeper Enterprise comes with a printed Quick Start Guide and a System Administrator guide, augmented by online help files. SpySubtract Pro and Omniquad AntiSpy Enterprise's documentation includes only online help files. SpyBot Search & Destroy offers rather sparse online help.

SpySubtract Pro, Spy Sweeper Enterprise and Omniquad AntiSpy Enterprise all offer telephone and online support features, while SpyBot Search & Destroy technical support is available only through e-mail.

Nance runs Network Testing Labs, and is the author of Introduction to Networking, 4th Edition and Client/Server LAN Programming. He can be reached at barryn@erols.com.

Nance is also a member of the Network World Lab Alliance, a cooperative of the premier reviewers in the network industry, each bringing to bear years of practical experience on every review. For more Lab Alliance information, including what it takes to become a partner, go to www.nwfusion.com/alliance.

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Identity introduction

Rolling out identity services projects requires careful steps and planning.

■ BY JOHN FONTANA

Steve Devoti might be a technologist at heart, but it was the cunning salesman lurking inside him that proved so beneficial to planning and managing a successful identity management rollout.

Devoti, the architecture manager for IT services at CUNA Mutual Group in Madison, Wis., says the project to provide single sign-on, user self-service and provisioning succeeded because it achieved company-wide appeal. "The stakeholders connected to us because we can protect applications that they own," he says.

Identity services, which grow from user data stored in a directory, are seen as keys for securing networks and controlling user privileges. They include access management, metadirectory, password management and other software.

Devoti and his colleagues convinced everyone in the company — as well as the CIOs at the 10,000 member

credit unions that subscribe to CUNA's financial services — to sign off on the security and administrative benefits of identity management. Then they delivered the goods, starting in January of this year and completing the basic infrastructure in six months and the more complex features in nine months.

Sounds simple enough, but it required a major change in IT attitude.

"With infrastructure, IT is not in the habit of talking to its end customers, but with identity management the issues are in how you communicate it, how you sell it, how you market the benefits to the end customers," Devoti says. "This really has to be a common services layer within your organization. You don't want to build one of these for each discrete group."

That's because a corporation of 20,000 employees will spend two to three years and between \$2 million and \$4 million to build an identity management service to lock down access control and help meet regulatory compliance demands, according to Pervez Goiporia, practice leader for electronic security at Mphasis, which provides IT consulting and business-process outsourcing services.

While Devoti would not reveal what CUNA spent, he says every penny was a wise investment.

CUNA has 5,000 employees and 70,000 credit union staff that access secured applications through CUNA's identity management system, which includes a directory and Web access management and provisioning software.

The system allows CUNA to authorize its 10,000-member credit unions to manage the identity and access rights of its own employees.

With little knowledge of how to build the identity system, CUNA brought in consultants who helped scope the project and mentor the IT staff. Once IT staff members understood the possibilities and benefits, they educated the rest of the company.

CUNA started with IT liaisons it has in each of its internal business groups. Those advisers began to sell each group on the benefits of identity management. CUNA then put together a committee with representation from each group, and the project began to take shape.

Integrators say that is a crucial step for future success.

"Unless you form this core team, you have a recipe for disaster," Mphasis' Goiporia says. "You will run into a lot of data consistency and integration issues. And they are going to come fairly soon in the process."

Goiporia says identity management is not really a project but more of a program that will run two to three years before it is fully integrated into core business processes.

Finding the place to start is key.

"If you have compliance pressure, then you might want to focus on what helps you do audits faster and more accurately," he says. "In a customer-facing scenario, something like single sign-on or strong authentication would be a better value."

He says one of the biggest problems companies face is intimidation from the scope of an identity management infrastructure.

"There is this danger of paralysis from wanting to know the full picture but shirking back from it when you discover the size of commitments it needs," Goiporia says.

Because of that, he says he sees more identity decisions being made by compliance officers, chief security officers and even CFOs.

"You have to create balance across the whole organization," CUNA's Devoti says. "We did not create a return on investment, we created a list of benefits."

One benefit was that self-service and delegated administration meant CUNA could add tens of thousands of users without adding a single full-time employee on the nine-person help desk. Another was a commitment to standards, which will ensure future expansion of the infrastructure and deeper integration with partners.

Once CUNA hammered out its model, which took a team of 20 nearly three months, it went to work getting the CIOs from the member credit unions on board with promises of tighter security and quicker access. "We made it an option for them, but we knew that we needed high adoption rates to be successful," Devoti says.

The identity infrastructure then began to come together in phases, a methodical stair-step approach that is key to demonstrating tangible results and assurance of future funding, Devoti says.

Within six months, CUNA built a single enterprise directory using Microsoft's Active Directory and then augmented that with access management software from Oblix. Next, CUNA added other Oblix-based services such as provisioning, which automatically creates and deletes accounts based on a set of policies. Mphasis' Goiporia says the phased approach is a good one but that users should be wary of details that can derail the best-laid plans.

"Performance testing and data scrubbing are often unexpected costs and are never visualized as a single point of failure," Goiporia says. "More than the costs, these can be last-minute roadblocks to going into deployment."



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Can I see your ID?

Professional services firm Mphasis says that any identity management project has to include a core team with representation from across a company, a clear road map and a critical eye for hidden costs.

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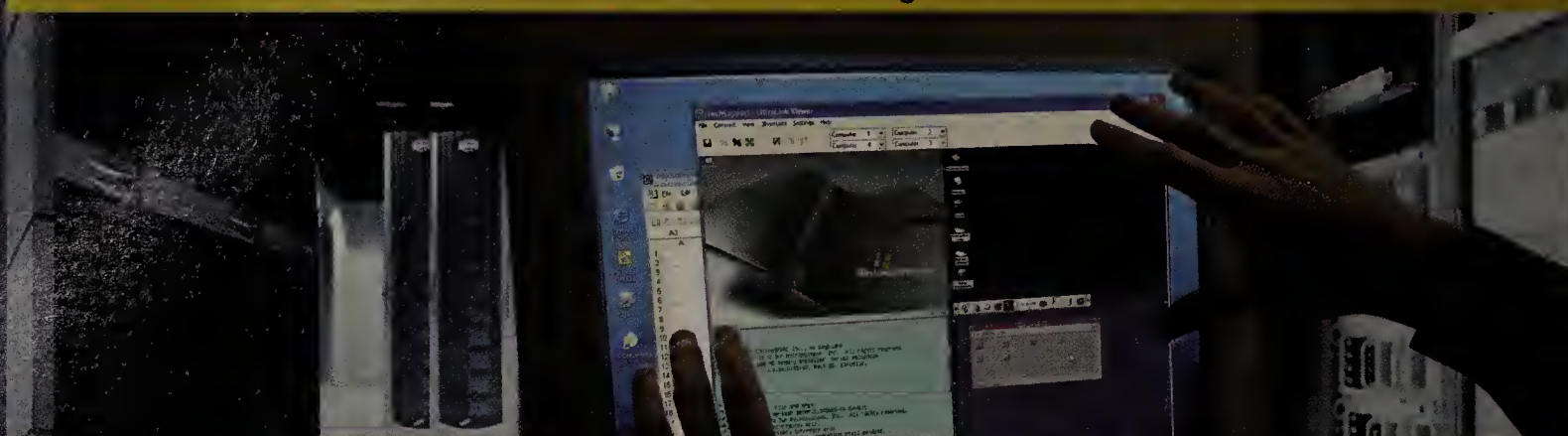
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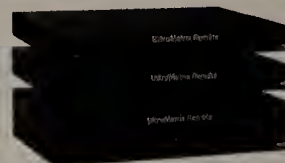
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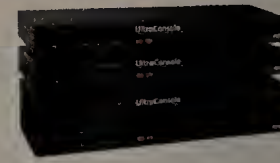


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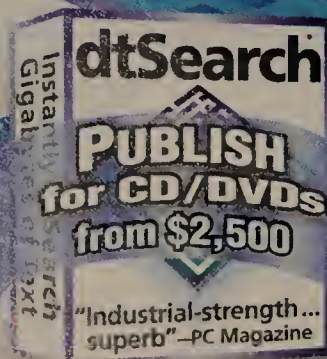
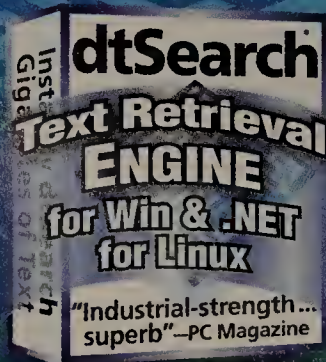


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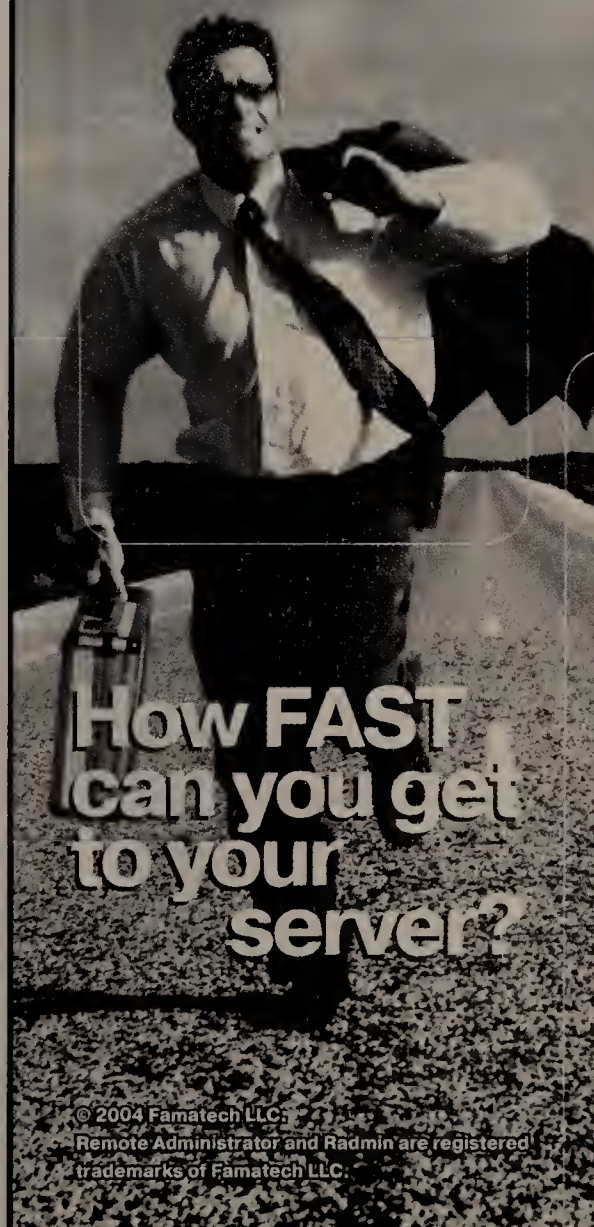
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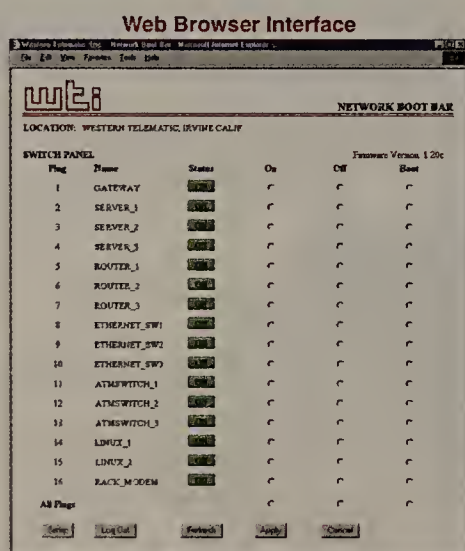
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State IT execs betting on VoIP

By Tom Igoe
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Is security ripe for outsourcing?

By Tom Igoe
Security is a hot topic in the IT industry, and many companies are looking for ways to outsource their security needs. Some of the reasons for this include the lack of in-house expertise, the need for specialized equipment, and the desire to reduce costs. Outsourcing security can provide many benefits, including access to a large pool of experts, the ability to scale resources up or down as needed, and the potential for cost savings.

Colleges cram for test of new security plans

By Tom Igoe
Colleges across the country are preparing for a test of their new security plans. The test, which is being conducted by the Department of Homeland Security, will evaluate the effectiveness of the plans in the event of a cyber attack. Colleges are being asked to provide information about their security plans, including details about their network architecture, security policies, and incident response procedures.

Keeping track of NASCAR

By Tom Igoe
NASCAR is the most popular motorsport in the United States, and it has a large following of fans. Fans can keep track of the latest news and events in the sport through various media outlets, including the Internet, television, and radio. NASCAR's website provides a wealth of information about the sport, including race schedules, driver profiles, and news stories. Fans can also follow their favorite drivers and teams on social media platforms like Facebook and Twitter.

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IT Careers in Insurance

While IT professionals continue to monitor a fairly slow job market, there's one industry segment that is seeing heightened competition for filling jobs. Andy Baker, human resources senior manager for Allstate Insurance Co., says in Chicago-land candidates are again seeing multiple offers. "One of the biggest challenges we have, as an industry, is building awareness. When we go to career fairs, individuals say things like 'Allstate does technology? I thought they just hired agents'," Baker says.

Baker's comments are echoed by two of the country's most technologically savvy insurance companies – Progressive and Nationwide. Between the three firms, nearly 1,000 job openings exist for the coming months. Research indicates that the insurance industry is one of the industries most likely to invest in technology, and tech leaders estimate that between 3 and 4 % of revenues are invested in new capabilities each year.

Nationwide Property & Casualty CIO Mark Torkos says the primary reason the industry is a good choice for IT professionals is that the sector has been relatively stable, the use of technology is aggressive, and there remains plenty of room for technology advances. "Technology provides the enablers for how we (as insurers) improve growth and profitability," says Torkos. "The nature of the projects we're

working on is increasingly complex, and we're looking to do these with a faster time to market. That really drives up the skill set and competency required."

Nationwide employs 5,000 IT professionals in the Des Moines and Columbus (OH) areas. The company is committed to development for its staff, including measuring how many jobs and promotions are filled from within as evidence of success. The skill sets include program management, object-oriented skill sets, requirements engineering and architecture, as well as information security. "We want to have all the talent we need (internally)," adds Torkos.

Progressive, which is based in Mayfield, OH, has projects lined up for 2005 that range from a new billing system to building a second major data center and application development center.

Progressive has claimed numerous awards for its use of technology, beginning with its position as the first auto insurer to launch a website and the first to receive a customer payment via a personal digital assistant (PDA).

Frank Holowach, business IT director at Progressive, says competencies include "people intimately involved in

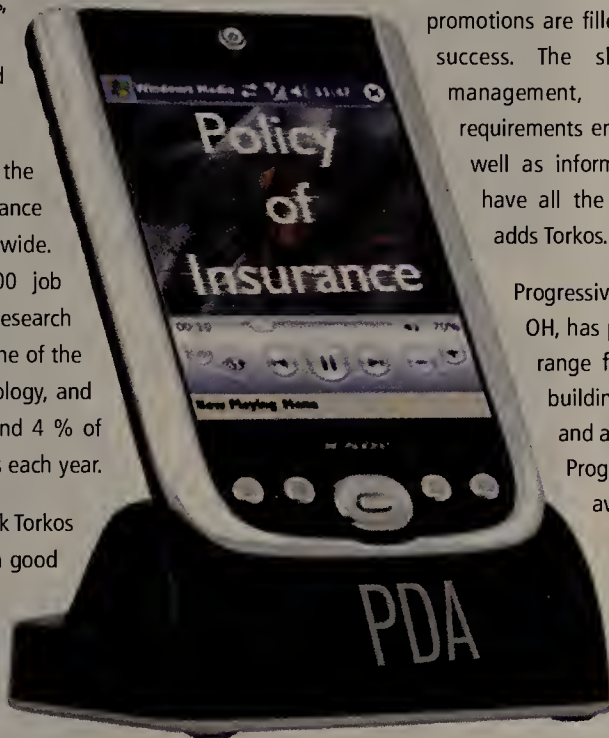
understanding the real business issues facing the company." This includes speed of service to the customer, enabling agents to open policies for customers more easily and faster and tools that give customers more control over their insurance policy. "Creativity and business go hand in hand," says Holowach. "We promote this in our culture and look for it when hiring. We look for strategic and creative people – doers and leaders – who challenge the status quo, take risk and initiative and thrive in a free-thinking, creative environment."

Allstate's Baker says the insurer will continue pushing the envelope, requiring additional IT professional staff members in the areas of application development, dot-net technology, software evaluation/test, technical architecture, database administration and information security. "We are all looking for the same people – people with insurance or financial services experience," he says. "It is a different type of data, and that data is an asset."

As with all the insurers, Allstate is looking for strong leaders and project managers who have experience in the full lifecycle of application development and implementation. Another characteristic being sought is cross-platform experience as different parts of the company have legacy, client/server and web-based architecture.

For more information about IT Careers advertising, please call: 800.762.2977

Produced by Carole R. Hedden



PROG ANALYST - UNIX ADMIN.
Install & maintain SUN servers & workstations running Solaris, HP/9000 bus, servers running HP-UX & Intel X86 servers running Linux. Perform operating system upgrades & patch installation. Install & maintain storage area network & storage arrays. Perform backup & recovery duties using enterprise backup packages. 2 yrs of college in Comp. Sci. or Electrical or Electronics Engrng + 2 yrs exp. in job offered or as a Software Engrng - Sys. Admin. reqd. Exp. must incl: Solaris, HP-UX & Linux operating systems; Veritas file systems; UNIX shell scripts, apache, php & mysql server components; & Legato NetWorker, HP Omniback & Oracle RMAN backup & recovery. High mobility preferred. 40 hrs/wk, OT as reqd, 8am - 5pm, \$66,730/yr. Submit resume to: Site Administrator, Greene County CareerLink, 4 West High Street, Waynesburg, PA 15370-1324. Refer to Job Order No. 478216.

Computer Programmer Analyst
Full time position to work as Computer Programmer Analyst, needs Implementation and Development Experience using ECOMAP and Gentran Suites, EDI Standards (ANSIX12, HL7, EDIFACT), HIPAA ToolKit, Experience in developing ANSI Transaction Maps like ANSI 834, 278, 820, 834, 837Prof, 837Inst, 270 / 271, with proficiency in Implementation of Siebel, Actuate Developer workbench and with experience in .Net, JAVA, J2EE, XML, EJB, ORACLE, SQL Server, PL/SQL, SYBASE, WebSphere, WebLogic, JBoss, Struts Framework, MVC, RationalRose, UML and with Testing Tools like JUnit, WinRunner, LoadRunner. Requires Bachelor's degree in Engineering or CS or CIS or equivalent and 2 years of experience in the job offered. Applicants send resume to Pyramid Consulting Inc, 8665 Providence Drive, Noblesville, IN 46060

Software Engineer: Design, plan, develop, document and test computer programs, applying knowledge of programming techniques and computer systems. Analyze business, scientific and technical problems for application to data processing systems. Encode equations for processing by computer systems using knowledge of C, C++, JAVA, Visual Basic 6.0, Oracle 8.0, SQL Server 2000 ASP, VB Script, COM+, VSS and the application of computer software tools to system analysis and design. Requirements: Bachelors Degree or equivalent (3 yrs. exp. for each yr. of college) with 2 yrs. exp. as a software engineer or programmer. Must be Microsoft Certified Solutions Developer. Salary: \$66,730/yr. 40 hrs/wk. Apply: Site Manager, Beaver County CareerLink, 2103 Ninth Ave., Beaver Falls, PA 15010-3957. Refer to Job Order No. WEB 477746.

Software Applications Engineer - Design, develop, implement and modify computer software applications for use in testing and validating integration of software and hardware systems employed in FDA regulated medical devices, and conduct research to validate systems and report results, utilizing Labview, advanced computer simulation techniques, computational physics, advanced ENM, and superconductivity. Requires B.S. or equivalent degree in Computer Science, Math, Physics, Engineering, Chemistry (math based) or closely related field, and three years experience developing software applications utilized to test and validate operational software and hardware in medical devices. (Note: Employer will accept M.S. level degree in Computer Science, Math, Physics, Engineering, Chemistry (math based) or closely related field in lieu of three years of experience.) Send resume to: Michelle Bakken, Human Resources, Stereotaxis, Inc., 4041 Forest Park Ave., St. Louis, MO 63108.

Solidworks Corporation, a market leader in software for mechanical design, analysis, and product data management is seeking a Manager, 2D Interoperability at our Concord, Massachusetts headquarters: - Candidate will design and implement advanced features for Solidworks' portfolio of Computer Aided Designed (CAD) system software. Provide CAD systems architecture, user interfaces, API, drawing creation and date translation; write translation software for major CAD applications; program software for a Solid Modeler. Position requires a Bachelor's degree in Computer Science, Mechanical Engineering or closely related field of study and 1 year of experience as a CAD Software Engineer or CAD Software Manager. This experience must include experience software programming for a Solid Modeler. Must include experience writing translation software for major CAD formats and working in 2D Interoperability between CAD modelers. Interested applicants should apply on-line only at: mgr2dint@solidworks.com

Software Engineer: Research, analyze req., design, develop, test, & implement a complete development environment & support bus. appl., component development, debugging, integrating components & diagnostics of web based tech. as well as Client/Server architecture using tech. such as: Java, JDBC, JSP, Java Script, Rational Rose, Cold Fusion, XML, XSLT & ERWIN. Apply knowledge in the following: VB, SQL Server, Oracle, & ASP. Design, develop, and integrate software appl. that support internet/intranet systems. Perform product design, testing, documentation & analysis of software appl.; May require travel to client sites in the U.S.; 9AM to 5PM; 40hrs/wk; \$55,000/yr; Edu: Bachelors or for, acad. equiv. in Comp. Sci., CIS, Engg.; Exp: 3 yrs. in offered or as a Systems Exec., Sr. Programmer/Analyst or any exp. providing skills in described duties; Send resume to: Job Order # FL-2563480; Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869.

Software Engineer (Inventory): Develop and maintain inventory planning, control system ERP package. Maintain files, database, spread sheet. Develop procedures and flowcharts. Maintain adequate control on inventory turns for multi product multi location system and provide adequate customer satisfaction. Develop module for purchasing and freight cost optimization. Develop ERP package for similar areas. Advance knowledge and experience in VB, SQL files, MS Access, MS Excel is essential. Req. Bachelor's in Comp. Science or Engg. and 1 yr of exp. Send Resume to: Sue Palmer, Star Pipe Products, Ltd. 4018 Westhollow Pkwy, Houston, TX 77082.

Full time position to work as Computer Programmer: Analyst, needs Implementation and Development Experience using Visibroker for Java 4.5.1, Visibroker for C++ 4.5 on HP-UX 10i and 11i OS, JSEE WebLogic, XML & JSP. Extensive implementation knowledge in database skills including Oracle 9i, PL/SQL, TOAD, SQL*Loader with knowledge on data modeling tools like ERWIN is preferred. Candidate must also have worked on testing tools like Jprobe, JUnit, dde & gdb debuggers, Shell scripts and diagnostic tools on HP-UX OS. Requires Bachelor's degree in Engineering or CS or CIS or MIS or equivalent and 2 years of experience in the job offered. Applicants send resume to Pyramid Consulting Inc, 8665 Providence Drive, Noblesville, IN 46060

SOFTWARE ENGINEER
Develop, enhance, maintain & support client/server apps for use within North American capital markets brokerage environment. Apps include global electronic platform for brokering & execution of various asset classes; Client-Server architecture that manages prices, orders, trades & confirmations; rich client user interface to manage orders, trades, confirmations to internal & external users; support and add new functionalities to existing products; develop Web-based applications applying knowledge of electronic trading systems and financial instruments. Must have BA degree or equiv in Comp Sci plus 2 yrs exp. Send resume to: HR Dept, Tullett Liberty Investment Corp, 80 Pine Street, NY, NY 10005.

Software Applications Engineer - Assigned as IT Consultant with project management responsibility, to design, develop and modify JSP, Servlets and software for web and general computer applications utilizing J2EE, STRUTS, Oracle/SQL and Java SDK. Multiple Openings Available. Requires Bachelors or equivalent-level degree in Computer Science, Computer Engineering, Mathematics or closely related field, and three years experience as Java/J2EE Developer in Web Applications. Send resume to Rick Heinlein, Ferguson Consulting, Inc., 12444 Powerscourt Dr., Ste. 235, St. Louis, MO 63131

2 Full time positions to work as System Analysts, with experience in all phases of SDLC using J2EE, UML, ANT, JProbe, Introscope, Grinder, CruiseControl, XML, XSL on Windows, AIX, FileNet, P8 (AE, CE, PE, WAT), SWT, ETL Datastage, SWING, LR, QTP, WR, Shell Scripts, Test Director, Clear Quest. Prior direct implementation using the protocols TCP/IP, UDP, SMTP, POP, DNS, Telnet. Requires Masters degree in CS or CIS and 1 year of experience in job offered. Applicants send resume to Pyramid Consulting Inc, 8665 Providence Drive, Noblesville, IN 46060

S/W Application Programmers to identify, solve problems/incidents in SAP or Oracle suite of apps; analyze, design, maintain apps; using either SAP, ABAP, VB, .NET, DW or Oracle database, Oracle appls (Financial, Manufacturing, Distribution, HR, Project), Oracle Appl Server PL/SQL, Reports/Forms on Windows/UNIX OS; perform req analysis, conduct functional testing/debugging; document, maintain & update user cases. Requires BS or equiv. in CS/Engg (any branch) or related field and 2 years exp in IT. Travel involved. F/T position. Comp salary Resume to HR, Quest America, Inc. 211 East Ontario Street Suite 1800, Chicago, IL 60611

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Dvlp customized PeopleSoft HR/payroll/benefits & financial applns. Perform requirments study, implementation planning, bus. process mapping, bit-gap analysis, spec dsgr, process mapping, testing & user training. BS degree in Comp. Sci. or Electrical or Electronics Engrng + 1 yr exp. in job offered or as a Software Engrnr - PeopleSoft reqd. Exp. must include PeopleSoft HRMS 8.8, SQR/SQL, Oracle & DB2 dbases, Visual Basic & Mainframe - COBOL. High mobility preferred. 40 hrs/wk, OT as reqd, 8am - 5pm, \$66,730/yr. Submit resume to: Manager, Butler County CareerLink, Puhlman Commerce Center, 112 Hollywood Drive, Suite 101, Butler, PA 16001-5699. Refer to Job Order No. 477713.

**PROG. ANALYST -
WEB DEVELOPER**

Perform full lifecycle software applns incl. requirements gathering, analysis, dsgr, testing & implementation. Analyze, dsgr, dvlp, extract, transform & load processes & launch high profile e-commerce systems using tier architecture & object-oriented technologies. B.S. in Comp. Sci. or Electrical or Electronics Engrng + 3 yrs exp. in job offered or as a Software Engrnr - Web Dvlpmt reqd. Exp. must include XML, ASP.net, C#, SQL Server & Visual Basic 5/6.Net. High mobility preferred. 40 hrs/wk, OT as reqd, 8am - 5pm, \$66,731/yr. Submit resume to Site Administrator, Greene County CareerLink, 4 West High Street, Waynesburg, PA 15370-1324. Refer to Job Order No. 478204.

Soft. Engg/SAP Consultants/Bus. Syst. Analysts/Bus. Analysts Needed. Sev. Positions available for candidates possessing MS/BS or equivalent and/or relevant work experience. Mail resume, ref. and sal. req. to: Seal Consulting, Inc., 101 Fieldcrest Ave., Raritan Plaza III, Edison, NJ 08837.

Computer Operations Manager with experience in financial and management aspects of IT Services, to work in various locations throughout US. Send resume to SAIC, 11490 Westheimer Blvd., 10th Fl., Houston, TX 77077. Attn: SAIC HR. Must reference job code #111. EOE.

Senior Prog/Analysts to lead teams to analyze, design, enterprise applications with OOAD methodologies using J2EE, JDK, JDBC, EJB, Java, HTML, JavaScript, XML, Weblogic, Websphere, Oracle, MS SQL Server on Windows environment; evaluate user requests for new programs or complex modifications to existing programs; test and debug programs; monitor ongoing program and system performance; provide training to team members. Require BS or foreign equiv. in CS/Engg (any branch) & 3 yrs exp. in IT. Competitive salary. Travel Involved. F/T. Resume to: HR, Bahwan Cybertek Technologies, Inc., 203 West Central Street, Ste 312 Natick, MA 01760.

Programmer Analyst needed for Software Development, Services & BPO firm located in Burlington, VT. Job duties include: Analyze, design, develop, test, and document computer programs and applications in a web-based environment for clients located throughout the U.S. Use iLog, XML, Java, J2EE, WebLogic, and Oracle. Applicant must have B.S. degree in Computer Science, Business, Math or Engineering. Applicant must also have 2 yrs. exp. in the job duties described above or in any computer related occupation which includes the skills listed above. 40hrs/wk, 8am-5pm, M-F, \$60,000/yr. Send resumes to: Job No. 29787, P.O. Box 488, Montpelier, VT 05601-0488.

Programmer-Analyst needed for Software Development, Services & BPO firm located in Burlington, VT. Job duties include: Develop and design computer applications for clients located throughout the U.S. Write data acquisition applications in a Windows environment. Write device drivers. Develop libraries (DLL's) that interact with device drivers and data acquisition applications. Develop firmware. Work with Real Time Kemels and developing Real Time Software. Applicant must have B.S. degree in Computer Science, Business, Math or Engineering. Applicant must also have 6 mos. exp. in the job duties described above or in any computer related occupation which includes the skills listed above. 40hrs/wk, 8am-5pm, M-F, \$60,000/yr. Send resumes to: Job No. 29981, P.O. Box 488, Montpelier, VT 05601-0488.

Computer Support Specialist wanted by TripodSoft, Inc (NJ) to support TripodSoft software developers on hardware, networking & operating systems. Requires MS in Comp Sci or related field with min 3 yrs exp in install, config & admin of LAN/WAN, AIX & PBX. Must be familiar with ERP, EAI, Websphere, OnDemand & DB2. Email resume to: jobs4tripodsoft@yahoo.com

Management Analyst - 8a-5p; 40 hrs/wk. Evaluate business organization/management data, information flow, operating procedures, records, design applications & prep operations manuals for management using systems analysis & design, database management systems, Visual Basic, C++, & AS400. Bachelors or equiv degree in Bus. Admin., Management Information Systems, Comp. Sci. or Engineering or related field. Resume: S3 Group, Inc., 4124 Chattahoochee Trace, Ste 103, Duluth, GA 30097.

Systems Engineer, Database. Must have BS or equiv. in Comp. Sci. or Info Sys. and 1 yr exp. Fluency in Japanese reqd. Send resume to: Mr. Marx, Hartz Mountain Corp, 400 Plaza Dr., Secaucus, NJ 07094.

**Software Engineer -
Applications**

Design, develop, test and deploy customized IT applications based on a client's needs and environment. Prepare and test cases and scripts, test execution, perform application performance tests. Make changes based on client reviews, provide client training following product deployment and presentation. Bachelors degree in CS or Eng. or related field and 2 yrs.of exp. or 2yrs. of exp. in a related position w/ability to use: UNIX, IBM Mainframe, Toad, Java, C/C++ & Oracle9i. 40.0 hrs./wk 9:00 AM - 6:00 PM Applicants send cover letter and resume to: Trans Atlantic Systems, 1945 Cliff Valley Way, #270, Atlanta, GA 30339, ATTN: S. Nagarajan.

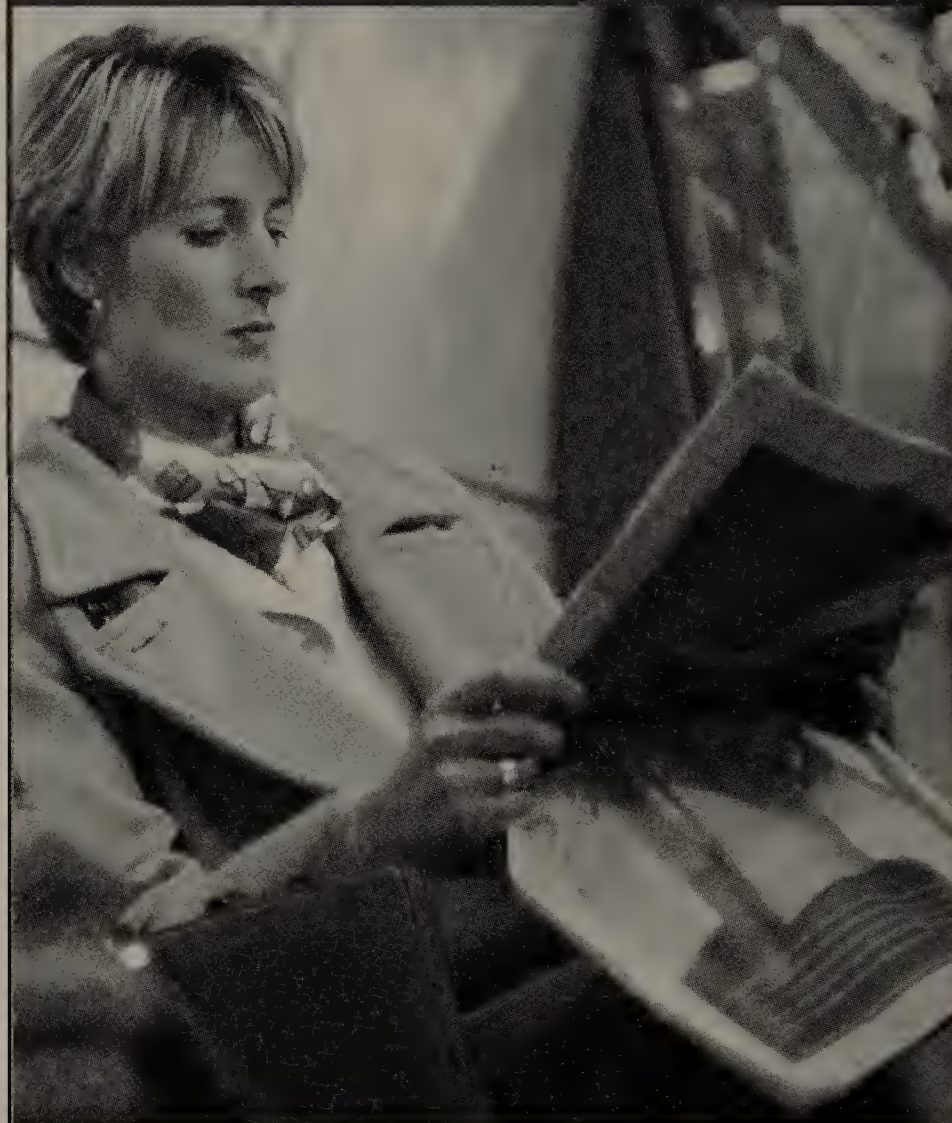
Consultants: Design, develop, test, document & maintain web-based, objoriented bus. apps for Intel Win 2000 Server, IBM Websphere/Weblogic, ZEUS Channel Server using Java, C++, C#, MS-SQL, XML, SOAP, JSP, ASP, & HTML on J2EE, .NET platforms. Req: BS comp. sci, engg, or related & knowledge of Intel/Windows 2000 Server, Java, ASP, & HTML. Resumes to: N. Green, S1, Inc., 3500 Lenox Rd., Suite 200, Atlanta, GA 30326

Multiple openings for software engineer/consultants, programmer analysts, network engineer, dba, project engineer/manager, program mgr (Biz Dev). Some positions req Bachelor (or equiv.) while others req Masters (or equiv.) in a related field. We will accept the foreign edu. equiv. &/or its equiv. in edu. & exp. Exp. req. will depend on position. Mail resumes to HR, Harvard Soft, 150 Westford Road, Suite # 28, Tyngsboro, MA 01879

Websphere Administrators to configure, install and administer WebSphere Application Server, IIS, Nokia Wap Serve etc; create and manage the connection pools of the WebSphere and cluster; run korn jobs in AIX to generate reports; analyze UML design patterns using Rational Rose; perform appl support in testing, identifying issues and tracking bugs and solving problems. Require BS or foreign equiv in CS/Computer Engg with 6 months exp in Websphere administration. Travel involved. F/T position. competitive salary. Resume to: HR, Koneru Software Services, 333 Swanson Dr., Ste 124, Lawrenceville, GA30043.

Computer Programmer/Analyst-System analysis, design, programming, debugging and testing for software development. Requires a bachelor's degree, foreign bachelor's, or equivalent and two years of experience in C++, .NET, JAVA, J2EE, and Oracle. We have positions throughout the US and job will require extensive travel or relocation to the job location depending on duration of the project. Please forward the resumes to: IT Technical Recruiter, Niagara Consulting Group, Inc., Tech-Recruiter@niagaraconsulting.com. Reference Code: WEB0922.

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Software Dev. Co. req. Software Engineer w/MS & 1yr exp. & Programmer Analyst w/BS & 24 mos. exp. in foll: Visual Basic, Oracle, PowerBuilder, Sybase, Java, Unix, C++, AS/400, CL/400, SQL Serv, Synon, Cobol, Lotus Notes, SAP, ABAP, PEOPLESOFT, Financials, Java Script, HTML, DB2, Corba, CICS, ILE, RPG, EJB, Siebel, JD Edwards, WebLogic, Rational Rose, Equiv. Deg. & exp also accepted. Travel & Relocation req. anywhere in U.S. Send res. to Attn: Recruiter, Allied Informatics, Inc, 9111 Cross Park Dr., Ste. D-200, Knoxville, TN 37923.

DATABASE ADMINISTRATOR sought by flooring Co. in Sugar Land, TX. Req'd degree & exp. Respond by resume only to: Mr. A. Abdelghani, K/H#10, Floor Max, 11102 Hwy 6 South, Ste 100, Sugar Land, TX 77478.

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Design and develop custom accounting software to serve as Virtual Private Network by using C#, ASP.net, VB.net and MS-SQL, Java and Oracle 8i. Analyze business procedures, solve problems, redefine data and convert data to a program-mable form by using MS Project, Excel & Access. Req. Bachelor in Comp. Science or Engg. with 1 yr of exp. Send resume to HR., TTSP LP # 5, 10110 Westview Dr., Houston, TX 77043 or E-mail: ttf_jobs@sbcglobal.net.

Programmer Analyst Design and develop custom accounting software to serve as Virtual Private Network by using C#, ASP.net, VB.net and MS-SQL, Java and Oracle 8i. Analyze business procedures, solve problems, redefine data and convert data to a program-mable form by using MS Project, Excel & Access. Req. Bachelor in Comp. Science or Engg. with 1 yr of exp. Send resume to HR., TTSP LP # 5, 10110 Westview Dr., Houston, TX 77043 or E-mail: ttf_jobs@sbcglobal.net.

Support Engineer (Madison, WI)- Engineering development including integration with Systems Engineering and Platform Engineering. Manage processes and builds. Maintain licensing system and creation of licenses for customers. Develop software for build system which compiles source code, configuration and upgrade elements to generate complete deployment package. Will utilize object oriented programming, Linux or Unix, relational databases, and normalization. Will utilize hardware, databases and operating systems in Enterprise environment. Provide technical support to systems engineering team. Must be willing to be on call 24 x 7. Must be willing to travel locally and internationally.

Must have a Masters degree or foreign degree equivalent in Computer Science, Engineering, or related field OR Bachelor's degree or foreign degree equivalent in Computer Science, Engineering, or related field AND 2 years of experience in a software development position. Educational coursework must include calculus and differential Equations. Education or work background may have been obtained concurrently and must include: (i) object oriented programming; (ii) relational databases; (iii) normalization; (iv) utilizing hardware, databases and operating systems in Enterprise environment; (v) Linux or Unix; and (vi) Java. Must have legal authority to work in U.S. Send resume to P. Fetteroff (REF:SE), Emageon UV, Inc., 1200 Corporate Dr., Ste. 400, Birmingham, AL 35242.

INTERNAL TECH CONSULTANT Database dvlpmnt, admin, & maintenance for core manufctng system. Analysis & tech design of IT manufactng solutions. B.A. Comp Science/ Engin or equiv & 2 yrs. database dvlpmnt experience, must be proficient in MS SQL Server, MS DTS, Transact-SQL, Oracle & bus intell. Apply to: Harland Co., Attn: Caryl James, 2939 Miller Road Atlanta, Ga 30035.

Performance Measurement Consultant wanted by software comp in NYC. Analyze, develop & consult on MIS software for asset mgmt clients. Internal & external consultation. Resumes to StatPro, Inc., 185 Madison Ave, NY, NY 10016.

Programmer Analysts to analyze, design, s/w apps using Java, ASP, Servlets, JDBC, HTML, Oracle, PL/SQL, Dev 2000, Forms, Reports Windows OS; design web pages dynamically using JavaScript; design database structure using UML; provide on site maintenance support, debug, modify, fine tune and perform code optimization. Require: BS or Foreign equiv with concentration in CS/Science/Engg (any branch) with 2 yrs exp in IT. Competitive salary, F/T positions, Travel involved. Resume to IOR Technologies, Inc. 2400 86th st, Ste12, Urbandale, IA50322. Job ID IORPA1104

Senior Database/OLAP Architect - Raleigh, NC-Responsible for all aspects of database administration & architecture including reliability, availability, scalability. Perform corporate & database security, development, staging, & server environments specifically pertaining to all OLAP cube & data mining development & maintenance. Responsible for maintaining the public database & corporate database. Provide maintenance & administration of development, staging & production servers. Provide OLAP/Data warehousing implementation along with Proclarity Reporting tool. Perform Database Schema Clean-up from SQL 7.0 to SQL 2000. Perform database modeling & design for new products & integration with current environment. Apply service packs & maintain database server's health. Perform database & log backups & restoration, backup strategies, scheduling backups, & implement disaster recovery plans when necessary. Mon-Fri, 8am-5pm 40 hpw. \$73,000/yr. Req: Masters in Computer Science or Engineering & 2 yrs exp in position offered or 2 yrs exp as Database Programmer or SQL Architect. Exp must include SQL Server, VisualBasic, ASP programming language with COM+/DCOM & MS SQL Analysis Server. Applicants should submit resume to Employment Security Commission, 3351 Carl Sandburg Court, Raleigh, NC 27610 or apply to nearest NC Employment Security Commission Office. Resumes must include applicant's Social Security Number, Job Order #NC7252105 + DOT Code 039.162.010.

Database Analyst/Administrator: Study and analyze logical and physical design of database using ERwin and Visio 2000 Data Modeler; build entity relationship diagrams and SQL and UNIX Shell scripts. Install and configure Oracle 9i Real Application Cluster and Data Warehouse Databases, Internet Application Server 91AS, Appworx 5.1 Scheduler, TOAD 7.6 on HP Tru65, Sun Solaris 2.8, AIX 5.1, Linux and Windows platforms. Perform online hot and offline cold backup using tools like Recovery Manager and Veritas. Performance tuning of database and load balancing of multi-terabytes database system. Optimize new features and automate maintenance tasks. Maintain data integrity and consistency. Implement security to industry standards. Requirements: Bachelors Degree or equivalent (3 yrs. exp. for each yr. of college) in Engineering, Information Systems, Computer Science, or related field. 4 yrs exp. as database administrator, computer programmer, software engineer or programmer analyst. Salary: \$60,000/yr. 40 hrs/wk. Apply: Site Manager, Beaver County CareerLink, 2103 Ninth Ave., Beaver Falls, PA 15010-3957. Refer to Job Order No. WEB 477737.

Wireless Test Engr. Conduct wireless product testing & requirements analysis, develop test plans, generate test cases & automate testing procedures for GSM & GPRS. Bach's deg in Comp Sci, Physics or Elec Engrg reqd + 5 yrs exp. Fax resume to PMCDU, 770-338-6001, Attn: D. Greer, PC

Computer Professionals

We have openings for the following positions to work at client sites throughout the United States. Send Resumes to: Webilent Technology Inc, 259 A Main St. Suite #5 Nashua, NH 03060

Java Programmer Analyst: Design and develop software applications using Java, JDBC, J2EE Websphere, Tomcat and XML. Perform object-oriented methodologies and problem diagnosis.

Visual Basic Programmer Analyst: Design, develop and test software applications using SQL, Server, VB, ASP, .NET and Crystal Reports. Involved in trouble shooting, query optimization, testing and production support.

Mainframe Programmer Analyst: Analyzing the business needs, writing the technical specifications and testing the application using Cobol, DB2, CICS, FileAid and MVS/ESA. Must be able to Performance Tune, Troubleshoot and production support.

Oracle Programmer Analyst: Design, develop and customize oracle applications using Oracle, Forms, Reports, stored procedures and PL/SQL. Solving system issues and performance tuning.

UNIX Systems Engineer: This position involves the analysis and proposal of system hardware, software, and system solutions for centralized HP-UX, AIX and NT enterprise-class computing platforms, unning software applications in an Oracle environment.

SAP Functional Consultant This position involves configuration of WM, MM and TF Technology implementation. Hands on experience using SAP modules like Material management and Sales and Distribution.

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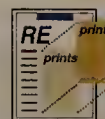
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History

continued from page 1

whenever you can get them. You're crawling in basements and crawl spaces, mostly."

Network technicians who install LANs in historic facilities make up for such architectural oversights with creativity, attention to detail and maybe some haggling with various historic preservation committees.

You might ask: "Why not just go wireless?" While they're tempted, and might go that route soon, the network teams at such sites have their reasons for using good old-fashioned cable for now.

The Sir Christopher Wren building at the College of William and Mary is the oldest college building still in use in the U.S. Designed by the London architect sometime around 1695, the site recently got an updated HVAC system, new electrical wiring and Category 5e network cabling.

"The biggest challenge is making a hole to get from Point A to Point B," says Don Hensley, project manager at the college. "You're not supposed to damage any of the existing structures to get through walls. They want you to try and find existing pathways."

"They" being the historical commission. At William and Mary, no work can be done on the school's three Colonial period



buildings without the commission's involvement. For a double whammy, consultants from Colonial Williamsburg, Va., also sometimes weigh in on how to keep a room's 17th century integrity even if it's wired for Ethernet and phones.

"Everything that was to be demolished or drilled into was marked first, then approved before anyone took chisel or saw or hammer to the building," says Louise Lambert Kale, director of the Historic Campus at the college.

Kale was on site every day during the Wren project. "I was doing everything from making sure construction guys in the cellar weren't using bad language — because the Wren building is the college's front door — to having conversations about where fire alarm pull stations would be located," she says.

IT project managers, contractors and architects worked closely with Kale on the smallest details, such as making sure network panels in "period" rooms were flush against the wall, or hidden.

"Most of the time you may just have to go the long way around," says Hensley, who helped oversee the wiring project. "You may have to lay molding, work cable into the molding, or just lay cable near existing molding along the floors and along doorways."

The IT team lucked out when it discovered that conduit could be run up through a vertical column of stacked closets discovered between floors. Most computer and telecom gear for the building is in the basement. About 90 network ports are installed through the building's classrooms, offices and period rooms.

"I know [the IT group] captured a small area in the cellar, too, some kind of pod thing down there," Kale says. "They also have an area on the third floor for some more equipment, all that mystical stuff."

Although projects wiring the school's dorms or modern classroom buildings are simpler than Historic Campus work orders, they're not as fun, Hensley says. "That's why I love it here, the history of everything."

Political project

In The Old State House in Connecticut, the IT team faced a wiring challenge

on a larger scale: Hundreds of state senators' and representatives' offices had to be wired from the basement, which became home to a central wiring rack and small telecom closet.

"Some of the runs were a bit of a problem because of length," CIO Regan says. The architect Bulfinch obviously didn't have LAN cabling risers in mind while at his drawing board. So IT staff used the network of chimneys and flues, now unused. These pipes now are packed with strands of single-mode fiber and copper. Fiber also connects the Old State House to a Gigabit Ethernet metropolitan-area

network, which links to an off-site data center.

"That was one good way to run the wires through the building and not damage any of the historical architecture," Regan says.

Another challenge was hooking up the statehouse's antique desks with network ports because many were not up against walls or close to network jacks, Regan says. To maintain the look of desks, cable was run up through the floor and ports were built into the desks where they could not be seen. On the House and Senate floors, RJ-45 jacks were fitted with brass panels.

At Ford's Theatre in Washington, D.C., a working theater best known as the site of Abraham Lincoln's assassination in 1865, contractors who were brought in for a recent LAN cabling installation ran into issues similar to those at William and Mary and the Connecticut statehouse.

"We had to get a little creative," says Michael Fox, a director at the theater, which is run by the National Park Services. "Our instructions to the contractors were to not drill any new holes; they had to find other ways."

To avoid drilling, contractors looped cables onto modern lighting fixtures and snaked cabling alongside the sprinkler system. Some cables go outside windows for vertical runs, Fox says.

So with all the tricks and travails involved in wiring historic facilities for LANs, why not go wireless?

"I suppose at some point we're going to be talking about wireless in the Wren Building," Kale says. "But we have some really significantly solid, thick brick walls on the interior of the building, and I've been told wireless would be difficult."

At the Connecticut statehouse, wireless is under consideration, but any installation won't be extensive. Regan says the technology is only just now getting mature enough where it could be considered for use in places such as the governor's office or on the Senate floor.

"If we had to do it all over from the beginning, wireless is probably the way I would have gone," Fox says. "Our facility would have lent itself very well to wireless." ■

Foundry adds oomph to data center appliances

■ BY PHIL HOCHMUTH

Foundry Networks this week is introducing appliances and switches aimed at making Web server farms and data centers more secure and accessible.

The company's new ServerIron SA appliances, which sit alongside Layer 4-7 switches and in front of servers, are designed to help companies handle growing Web traffic volumes by accelerating and terminating SSL sessions and compressing data. Terminating SSL and TCP sessions on the device lets server CPUs process more application or database transactions without being bogged down with encryption or network protocol processing, according to Bob Schiff, general manager of Foundry's Layer 4-7 switching group.

Security features also are included on the device for protecting data center servers. The appliances can recognize 30 types of denial-of-service (DoS) attack signatures, and can cut off connections from hosts attempting to attack a server.

A Secure Global Load Balancing feature also allows for failover to an alternate or redundant data center in case of disasters. The technology works by manipulating DNS and routing protocols, such as Open Shortest Path First, for quick, secure redirection of traffic to back-up data centers or Web sites, Foundry says.

The ServerIron SA series will compete with products from F5 Networks, NetScaler and Redline Networks, which also offer mixes of traffic compression, DoS protection and multi-layer switching.

In addition, Foundry is rolling out new versions of its ServerIron GT switches. New configurations include: a 24-port 10/100M bit/sec box with four Gigabit ports; a 16-port 100/1000M bit/sec box; and a four-port Gigabit Ethernet device. Each can act as a wire-speed Layer 2-3 switch and can provide software-based Layer 4-7 application switching.

The four ServerIron SA products, which are scheduled to ship in February, include dual 10/100/1000M bit/sec interfaces and range in performance from 200 to 11,000 SSL transactions per second. The boxes cost from \$10,000 for the low-end SA-100 to \$35,000 for the high-end SA-800. A version that complies with Federal Information Processing Standards will cost \$45,000. The new ServerIron GT boxes range from \$20,000 to \$25,000. The four-Gigabit ServerIron GT is scheduled to be available in February, while the 24-port and 16-port models are shipping now. ■

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BackSpin Mark Gibbs



Online commerce and Mrs. Gibbs

"You must have hit the back button."

— PayPal representative explaining to my wife why she wound up paying an eBay seller the same amount for the same item three times

In the decade that the Internet has become a central feature of our culture, online commerce has gone from pipe dream through experimental service to mainstream business. The effect on the average consumer has been profound.

Take my wife: Just a scant five years ago Mrs. Gibbs thought that computers were just another thing to dust. She now has become proficient at navigating the Web and a dab hand at eBay auctions. But when the services she uses behave erratically, she is lost.

Us old hands know what bad online application performance looks like. We know — at least roughly — what an error means even when it is a ridiculously general message such as "unexpected error."

But give non-technical consumers such as Mrs. Gibbs a PayPal response that says "We are sorry that we are experiencing temporary technical difficulties. Please try again later. Message 3005," and they're lost.

Note that eBay owns PayPal, and the two businesses are now so inextricably intertwined that they are to

all intents and purposes the front and back ends of the same commercial engine.

Anyway, such was the situation with PayPal over the last few days when Mrs. Gibbs found that she had made multiple payments for the same item to the same seller. She had tried to pay for an item and wound up with "Message 3005" and tried again immediately, a few hours later and then the next day. Later she found multiple payments had been made on some items while other transactions hadn't been executed at all! Mrs. Gibbs, of course, enrolled me in sorting out the problem.

My first call to PayPal entailed a wait of 35 minutes followed by a conversation with a customer service representative who didn't care about my problem because she didn't understand and so had no idea how to handle it. Her conclusion was that it was my wife's fault. The rep contended that my wife had hit the back button and caused the money to be transferred multiple times. But the transaction is done over SSL so hitting the back button doesn't work.

The rep declared that it wasn't their problem and that we would have to correspond with the payee and get them to reverse the transaction. This did my temper no good at all.

Of course this wasn't my only call to PayPal. Sorting things out took two more calls totaling 65 minutes. The result was the conclusion by customer service

that PayPal's servers were overloaded and they couldn't do anything so I would have to sort out for myself how to pay for the eBay items.

My thoughts about this are simple: First, the dominant players online are vulnerable to competition because their size combined with rate of growth makes them as fundamentally incompetent and inefficient as, for example, a telephone company.

Second, these companies misunderstand the role of customer service. Customer service is there to sort out problems. If they can't, then customer service becomes a kind of anti-sales operation ensuring that customer loyalty is low and customer churn is high.

Maybe it is good that eBay, PayPal and all other the behemoths of online commerce don't get the customer service issue. It keeps the market fluid, letting competition and innovation arise and thrive on the back of the inefficiencies and stupidities of the market's incumbents.

On the other hand, if I have to keep dealing with these kinds of operations I might just retire to a cabin in the woods and leave the whole mess to a younger, more patient generation of Internet consumers. They will, in turn, get frustrated and disillusioned with online commerce. It might never end.

Contact customer disservice at backspin@gibbs.com.



'Net Buzz News, insights, opinions and oddities

By Paul McNamara

Spam book a real page-turner

Hell hath no fury like a woman spammed — take, for example, Susan

Gunn, better known in Internet newsgroups as Shiksaa, the queen of all spam fighters.

And hell hath spawned few more odious characters than Davis Hawke, born Andrew Britt Greenbaum, who failed spectacularly as a neo-Nazi organizer before finding his true calling as a high-volume spammer.

Hawke and Gunn are but two of a long list of real-life heroes and villains who emerge in blazing color from the pages of Brian McWilliams' recently published book, *Spam Kings — The Real Story Behind the High-Rolling Hucksters Pushing Porn, Pills and @*#?% Enlargements*. (Just for the record, we are allowed to use the word "penis" in *Network World*, although McWilliams' publisher, O'Reilly, apparently decided it was too much for a book jacket.)

Spam Kings is nonfiction but reads like a lively novel, which means it should appeal not only to IT professionals looking to better understand their enemy but anyone who has a passing interest in the spam world's inner workings.

A pretty sight it is not. The spammers come across as even more unscrupulous and personally dislikable than you might imagine — trust me, that's possible. The bigger fish appear to make money hand over grubby fist, they couldn't care less about your complaints, and with precious few exceptions they treat law enforcement efforts and civil lawsuits like an in-box full of their junk: delete, delete, delete.

The anti-spammers — or antis, as they're known — seemingly spend half their waking hours jousting with spammers online, thwarting spammer-initiated distributed DoS attacks, and, irony of expensive ironies, defending themselves against nuisance lawsuits filed by the bad guys. The antis will make you glad that someone is fighting this dirty fight . . . and doubly glad that it isn't you.

A reader gets the distinct impression that there's a sense of community but not much honor among spammers.

"One of the biggest surprises was how interconnected many of the players in the spam business are," says McWilliams, a longtime technology journalist. "Several of the 'Spam Kings' have at one time been business partners with each other. Yet they may not even know it, because spammers typically use aliases or hide behind constantly morphing corporate identities."

Watching the spammers turn on one another is among the book's more pleasurable elements, while watching a few of the antis wander over to the dark side adds a disturbing counterweight.

"As I got into the research, I was also surprised at how bizarre the central figure, Davis Hawke, was," McWilliams says. "Because of his neo-Nazi background, I knew from the start that he was a strange character. But as I dug further, I kept finding out amazing stuff about him, such as the fact that he buried most of his spam earnings in the woods, or that he kept a live-in prostitute, or that his great-grandfather was a civil rights activist."

Despite being ruled in default on a lawsuit filed against him by AOL, Hawke continues spamming to this day, according to McWilliams. A number of the spammers are revealed as truly troubled individuals, even borderline sympathetic — the so-called "Time travel spammer" being Exhibit A — but Hawke is not to be counted among them.

While the book isn't about solving the spam problem, McWilliams does have an opinion on the likelihood of that happening.

"As I say in the epilogue, I'm not optimistic that the spam problem will go away anytime soon," he says. "The root of the problem is not flaws in SMTP or weak laws or rogue ISPs. The problem is that people buy from spammers. Until this market of what I call 'furtive shoppers' dries up, we'll have to continue to rely on technology and laws to shield us from the pollution."

My spam magnet is buzz@nww.com.

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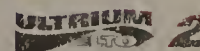
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*—Laura DiDio, The Yankee Group, April 2004
Linux, Unix, and Windows TCO Comparison*

The Yankee Group, a global research and consulting firm, concluded that a significant switch to Linux from Windows or Unix could cost three to four times as much without delivering tangibly better performance or business value. These findings are based on a non-sponsored worldwide survey of 1,000 IT administrators and C-level executives in midsized and large enterprises.

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